Pyraclostrobin (210)

The first draft was prepared by Dr Farag Mahmoud Malhat, Central Agricultural pesticides Laboratory Giza, Egypt

EXPLANATION

Pyraclostrobin was first evaluated for toxicology by the 2003 JMPR when an ADI of 0–0.03 mg/kg bw and an ARfD of 0.05 mg/kg bw were established. The current meeting established a new ARfD of 0.07 mg/kg bw and decided to withdraw their previous recommendation. The 2004 JMPR recommended the following residue definition for pyraclostrobin:

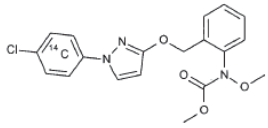
Definition of the residue for compliance with the MRL and dietary risk assessment: pyraclostrobin.

The residue is fat-soluble.

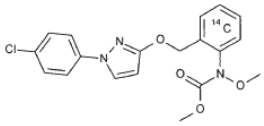
The compound was re-evaluated for residues by the JMPR in 2006, 2011 and 2014. Pyraclostrobin was listed by the Forty-ninth Session of the CCPR for the evaluation of additional uses by the 2018 JMPR. The Meeting received information on animal and plant metabolism, analytical methods, use patterns, supervised trials, and processing.

METABOLISM

The Meeting received additional metabolism studies on plants and animals. The metabolism and distribution of pyraclostrobin in plant and animal were investigated using pyraclostrobin radiolabelled either in the chlorophenyl, tolyl or the pyrazole moieties.



Chlorophenyl labelled



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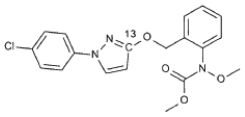
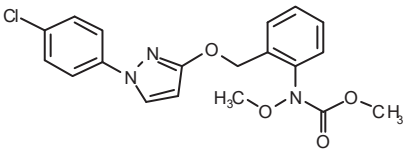
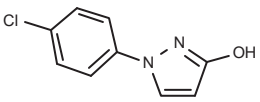
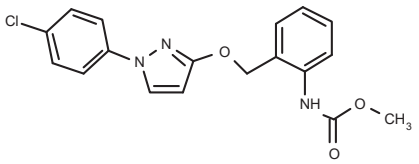
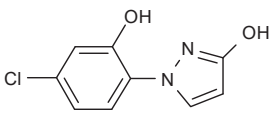


Pyrazole labelled

The following abbreviations are used for the metabolites discussed below.

Code Name	Chemical Name	Compound found in	Structure
Pyraclostrobin	methyl N-(2-{[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxymethyl}phenyl)-(N-methoxy)carbamate	Plant, animal, soil	
500M04	1-(4-chlorophenyl)-1H-pyrazol-3-ol	grapes, Chinese cabbage, wheat, hydrolysis (olive oil, high temp.)	
500M07	methyl N-(2-{[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxymethyl}phenyl) carbamate	grapes, Chinese cabbage, potatoes, wheat, rice, hydrolysis (olive oil, high temp.)	
500M85	1-(4 chloro2-hydroxy phenyl) 1H-pyrazol-3-yl	goat	

Plant metabolism

The fate of pyraclostrobin in plant was investigated by the 2004 JMPR following application of [^{14}C] pyraclostrobin to grape, potato and wheat. A detail assessment of these studies is presented in the 2004 JMPR report.

For the current Meeting, four new metabolism studies in Chinese cabbage, rice and grape (foliar treatment) and wheat (seed treatment) were recieved to support the extension of uses.

Grape

The metabolism of pyraclostrobin in grapes was investigated by Hamm R.T., (1998a, CA 2.2.1/1); Hamm R.T., (2000a, CA 2.2.1/2) and Bross M., (2004c, CA 2.2.1/3). [^{14}C] pyraclostrobin (tolyl and chlorophenyl labels) was applied 6 times as an EC formulation to Mueller-Thurgau vines at a rate of 250 g ai/ha (total 1500 g ai/ha) during the vegetation period. The first application was at growth stage BBCH 53-55 (inflorescences visible to fully developed) and was repeated 5 times approximately every 16 to 19 days thereafter. The last application was at growth stage 81 (beginning of ripening), 40 days before harvest.

Grape and leaf samples were extracted with methanol, and the residue in grapes further extracted with ammonia or water. The extractable radioactive residues were quantified by radio HPLC, characterised by liquid/liquid partitioning using cyclohexane and ethyl acetate, and identified by comparison with reference substances. Where possible, compounds were isolated by HPLC and their structures elucidated by LC-MS/MS.

For information on the storage stability of the grape samples, the only relevant raw agricultural commodity, the extractability and HPLC profiles were investigated at the beginning and end of the study.

The total radioactive residues (TRRs) from the grape samples at harvest time (40 DALA) treated either with [tolyl-label]- or [chlorophenyl-label]- labelled pyraclostrobin are shown in Table 1. Due to the high water content of the samples, TRRs were calculated from the sum of ERRs and RRRs.

Table 1 Summary of identification and characterisation of residues in grape berries and grape leaves dosed with ^{14}C-pyraclostrobin

	Grape berries				Grape leaves			
	Tolyl label		Chlorophenyl label		Tolyl label		Chlorophenyl label	
	mg/kg eq	%TRR	mg/kg eq	%TRR	mg/kg eq	%TRR	mg/kg eq	%TRR
TRR combusted	-		-		40.266		49.673	
TRR calculated (ERR +RRR)	1.559		0.951		41.243		40.029	
Extractability (Methanolic ERR)	1.314	84.3	0.835	87.8	28.866	70	28.327	70.8
organo soluble	1.13	73.2	0.74	77.8	-		21.412	53.6
water soluble	0.096	6.2	0.075	7.8	-		5.615	14.1
non extractable residues PRR	0.245	15.7	0.116	12.2	12.377	30	11.702	29.2
extraction with ammonia or water	0.023	1.5	0.006	0.6	-		-	
raw lignin	0.071	4.6	0.039	4.1	-		-	
supernatant	0.111	7.1	0.027	2.8	-		-	
not-released residues (raw cellulose)	0.044	2.8	0.017	1.8	-		-	
recovery RRR	0.249	16	0.089	9.3	-		-	
Total identified	1.03	66.7	0.747	78.47	-		-	
Total characterised	0.249	16.1	0.095	9.94	-		-	
Bound Residues	0.226	14.5	0.083	8.7	-		-	
losses	0.054	27	0.027	2.9	-		-	
Grand Total	1.505	97.3	0.925	97.11				

Grapes berries: In the methanol extracts only parent (56–62% TRR) and one main metabolite, 500M07 or synonym 500M07 (11–17% TRR) could be isolated and analysed (LC-MS).

Three minor metabolites could be further characterised by co-chromatography with isolated and identified metabolites from grape berries, designated as 500M54, 500M55 and 500M56 (each single peak was less or equal to 4.01% TRR). Their concentrations in the berries were < 0.05 mg eq/kg.

Table 2 Summary of identified components in grape fruit samples after treatment with ^{14}C-pyraclostrobin

Metabolite code (Reg. No. of reference substance)	Grape berries	
	Tolyl label mg eq/kg (% TRR)	Chlorophenyl label mg eq/kg (% TRR)
TRR	1.559	0.951
pyraclostrobin	0.860(55.7)	0.588(61.79)
500M07	0.170(11.02)	0.159(16.68)
500M54	0.045(2.9)	0.015(1.55)
500M55	n.d.	0.038 (4.01)
500M56	0.048(3.11)	0.016(1.69)
Total identified	1.03 (66.7)	0.747 (78.47)
Total Characterised	0.249 (16.1)	0.095 (9.94)
Bound residues	0.226 (14.5)	0.083 (8.7)
Losses	0.054 (2.7)	0.027 (2.9)
Total	1.505 (97.3)	0.925 (97.11)

n.d. not detected

Leaves: Pyraclostrobin and its desmethoxy metabolite 500M07 (BF500-3) formed the major part of the radioactivity in the MeOH extracts.

The cyclohexane phase containing 12.326 mg eq/kg (corresponding to 30.8% TRR) consisted of pyraclostrobin and 500M07; only one minor additional peak was detected. The radioactivity present in the ethyl acetate phase (corresponding to 9.086 mg eq/kg, 22.8% TRR) was distributed among at least 10, partly overlapping metabolites. The ethyl acetate phase was fractionated and the individual fractions passed to MS for structural identification.

Fraction 2 consisted at least of three metabolites. One of them was characterised as saccharose conjugate of the hydroxy parent molecule based on its fragmentation pattern, hydroxylation and subsequent conjugation is more likely in the chlorophenyl-pyrazole moiety.

In fraction 4, two metabolites were detected. The first one was characterised as saccharose conjugate; according to the fragmentation pattern, hydroxylation and subsequent conjugation took place in the pyrazole ring system. The second peak was identified as 500M56.

Further fractionation of fraction 5 resulted in two samples. In one sample, four metabolites were found. For none of them a clear identification was possible. In the other sample, the metabolite present was identified as 500M04.

Fraction 6 consisted of at least three metabolites. One of them was characterised as glucose conjugate of the desmethoxy metabolite. Most likely, hydroxylation and conjugation took place in the tolyl ring system resulting in structure 500M71.

In fraction 8, a glucose conjugate was present. Based on the fragmentation pattern, hydroxylation and subsequent conjugation is more likely in the chlorophenyl pyrazole moiety. In fraction 9, MS was identified as 500M54.

The remaining aqueous phase containing 5.615 mg/kg and 14.1% TRR is containing one predominant peak plus 4 additional components in very low amounts. The peak was identified as the metabolite 500M55. It is clearly present in amounts greater than 10% TRR.

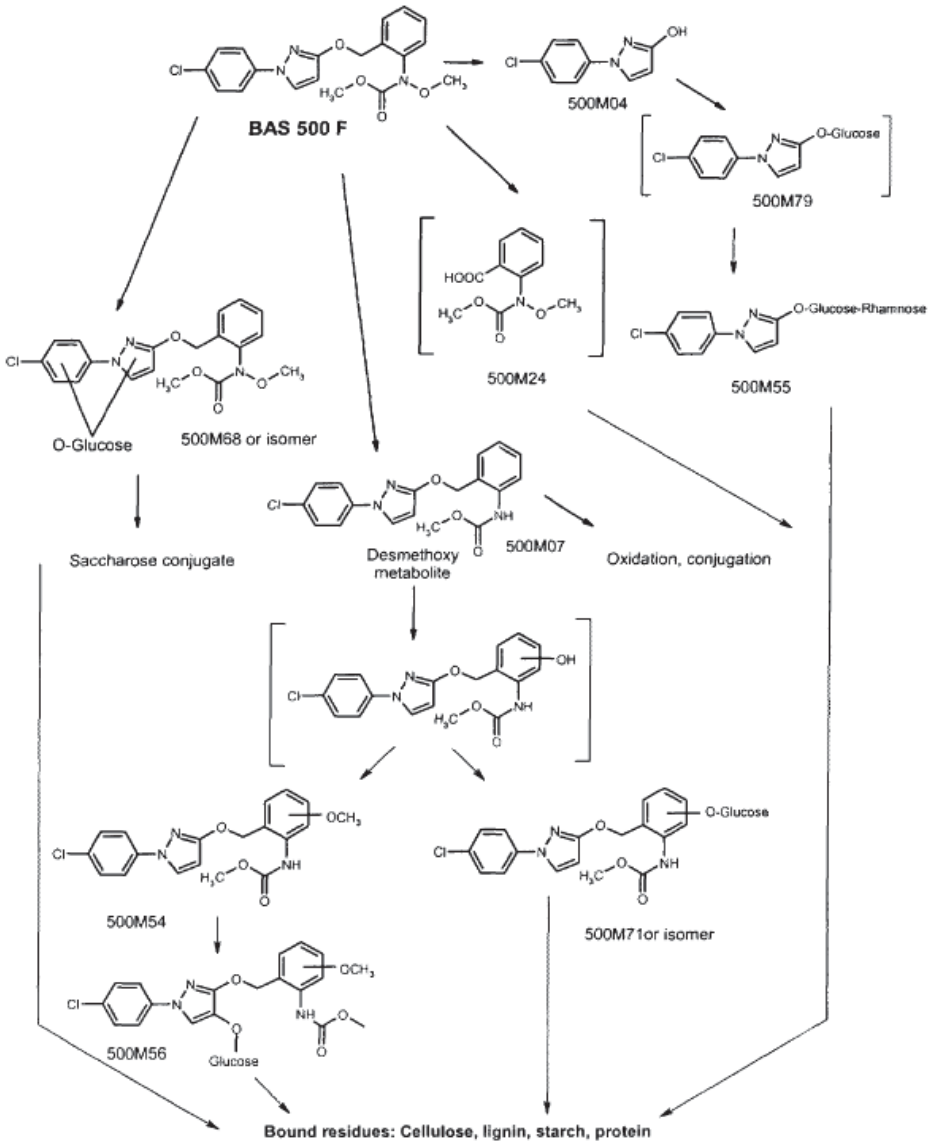


Figure 1 Metabolic pathway of pyraclostrobin in grapes

An estimate of the storage stability of the metabolite pattern was carried out with MeOH extracts of grapes treated with both ^{14}C-labels of pyraclostrobin and stored at about -20 °C until further work up. The MeOH extracts from the first and the last extraction were compared by radio-HPLC.

At the end of the study, 97 days after the 1st extraction, the chromatogram from the tolyl-label corresponds considerably with that of the 1st extraction. Only a slight change from 74.1% TRR to 73.5% TRR for pyraclostrobin and from 19.5% to 20.7% for the metabolite 500M07 (BF 500-3) could be observed. Grapes which were stored at -20 °C for 188 days were extracted three times with MeOH.

By HPLC analysis, the resulting extract was compared with the 1st extract, which had been stored for the same time at -20 °C. The results showed that in the MeOH extract pyraclostrobin slightly decreased when compared to the active substance content in the stored grapes (73% TRR to 70% TRR).

The concentration of the metabolite 500M07 slightly increased from 17 to 19% TRR in the MeOH extract within the same time interval.

These results indicate that the residues in grapes, treated with pyraclostrobin were stable under the chosen experimental conditions.

Chinese cabbage

The metabolic fate and distribution of pyraclostrobin was studied outdoors in Chinese cabbage following foliar treatment (Sato K., 2000c, CA 2.2.2/1). Three potted Chinese cabbage plants were treated three times with either radiolabelled pyraclostrobin by a spray application on the day of 17, 10 and 3 days before mature harvest at a maximum use rate of ca. 130 g ai/ha. Three days after the final application, the treated Chinese cabbage plants were harvested and separated to a leaf-ball (as edible portion) and outer leaves.

Each plant part from each label treatment was homogenised and aliquots of each homogenate were then subjected to oxidative combustion to determine the TRR level in each plant part. The ^{14}C- distribution of radioactive residues among the leaf-ball and the outer leaves were also calculated. Another duplicate portion of each plant part from each label treatment was extracted using benzene and methanol, and each extract was then analysed by HPLC to quantify and/or identify radioactive components. Prior to HPLC analysis, each extract was subjected to solid phase extraction using a C18 SPE cardige, which separated the components into leass polar, polar, and highy polar (water soluble) fraction.

The TRR levels of chlorophenyl ring label in the outer leaves and the leaf ball were 2.75 and 1.12 mg eq/kg, respectively. The TRR levels of tolyl ring label in the outer leaves and the leaf ball were 3.72 and 1.20 mg eq/kg, respectively.

There was no significant difference for the TRR levels in plant samples between both labels. The distributions of radioactive residues among the outer leaves and the leaf-ball of Chinese cabbage plants were approximately 60% and 40%, respectively.

In outer leaves and leaf ball samples, the solvent extractability was high; it ranged from 89 to 109% of the TRR.

Residues after solvent extraction were less than 5% of the TRR, indicating that there was no appreciable formation of unextractable bound residues.

Solid phase extraction (SPE) experiments were carried out to classify the metabolites into organo-soluble and water-soluble ones. In the case of the samples treated with the chlorophenyl and tolyl label most of the radioactivity was found in the benzene eluate (81.5–102%). The polar components in the methanol eluate amounted for only 6.0–8.8% of the TRR. The amounts of highly polar fractions eluted in aqueous eluate were negligible (less than 0.5% of the TRR for all samples).

Table 3 Summary of characterization of residues in Chinese cabbage dosed with ^{14}C-pyraclostrobin

	Outer leaves				Leaf ball			
	Tolyl label		Chlorophenyl label		Tolyl label		Chlorophenyl label	
	mg/kg eq	%TRR	mg/kg eq	%TRR	mg/kg eq	%TRR	mg/kg eq	%TRR
TRR combustion	3.7219	62.55	2.7484	61.32	1.2013	37.45	1.1161	38.68
TRR calculated (ERR +RRR)	4.1716	113.63	3.0238	110.02	1.3324	112.44	1.0172	91.14
Extractability	4.0166	109.4	2.926	106.46	1.2911	108.95	0.9889	88.6
benzene elute	3.7343	101.71	2.6982	98.17	1.1831	99.84	0.9097	81.51
methanol elute	0.3128	8.52	0.2421	8.81	0.0785	6.63	0.0672	6.02
water soluble	0.0116	0.32	0.0046	0.17	0.0058	0.49	0.003	0.27
unextracted residues	0.1551	4.22	0.0978	3.56	0.0414	3.49	0.0284	2.54

Unchanged pyraclostrobin was the principal radioactive component in both outer leaves and the leaf-ball. This compound accounted for 82.9% (2.28 mg eq/kg) and 82.5% (3.03 mg eq/kg) of the TRR in outer leaves of C-ring label and T-ring label treated plants, respectively. For the leaf-ball, pyraclostrobin represented 74.2% (0.83 mg eq/kg) and 85.1% (1.01 mg eq/kg) of the TRR in the C-ring label and the T-ring label treated plants, respectively.

The principal metabolite was found to be 500M07 (BF 500-3). The residue levels of this metabolite in the outer leaves of the C-ring label and the T-ring label treated plants was 8.5% (0.23 mg eq/kg) and 11.9% (0.44 mg eq/kg), respectively. The metabolite also accounted for 5.6% (0.06 mg eq/kg) and 10.6% (0.13 mg eq/kg) of the TRR in the leaf-ball of the C-ring label and the T-ring label treated plants, respectively.

In addition to metabolite 500M07, several minor radioactive metabolites were found in the extracts of the C-ring label and/or the T-ring label treated plants. The residue levels of these minor metabolites were extremely low.

Table 4 Summary of identified components in Chinese cabbage samples after treatment with ^{14}C-pyraclostrobin

Metabolite code (Reg. No. of reference substance)	tolyl-pyraclostrobin		chlorophenyl-pyraclostrobin	
	Outer leaves	Leaf ball	Outer leaves	Leaf ball
	mg/kg (% TRR)	mg/kg (% TRR)	mg/kg (% TRR)	mg/kg (% TRR)
pyraclostrobin	3.0279 (82.47)	1.0086 (85.11)	2.2789 (82.92)	0.8281 (74.2)
500M07	0.4355 (11.86)	0.1254 (10.58)	0.2335 (8.49)	0.0624 (5.59)
500M04	nd	nd	0.044 (1.6)	0.0077 (0.69)
500M72	0.0076 (0.21)	<0.0018 (<0.16)	nd	nd
Unknown CT1	0.1339 (3.65)	0.0203 (1.71)	0.0708 (2.58)	0.0173 (1.55)
Unknown C2	nd	nd	0.0574 (2.09)	0.0119 (1.07)
Unknown C1	nd	nd	0.054 (1.96)	0.0078 (0.07)
Total identified	3.471	1.1358	2.5564	0.8982
Total unknowns	0.1339	0.0203	0.1822	0.037
Total	3.6049	1.1561	2.7386	0.9352

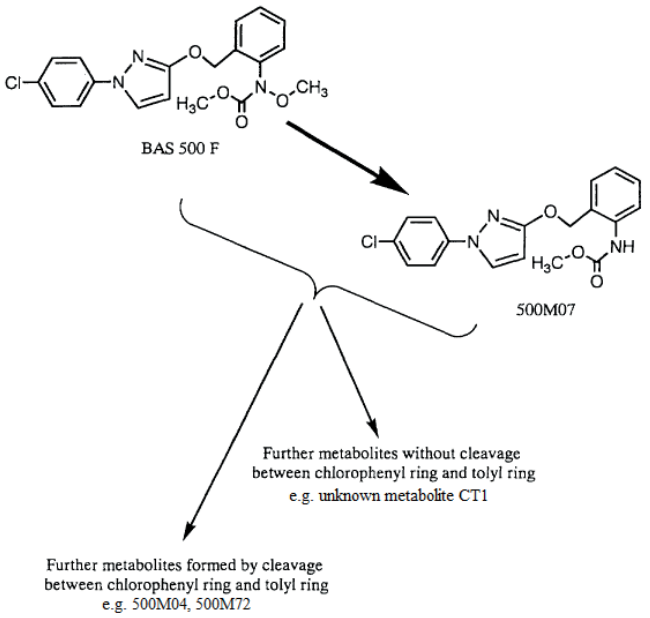


Figure 2 Proposed metabolic pathway of pyraclostrobin in Chinese cabbage

Rice

The metabolic fate and distribution of pyraclostrobin was studied in rice following foliar treatment (Rabe and Kloeppner, 2014c, CA 2.2.3/1). Two foliar spray applications were performed with pyraclostrobin, each with an application rate of 100 g ai/ha. The first application was carried out at growth stage BBCH 39, the second at BBCH 69. Forage samples of both labels were taken one day before the second application. Straw and grain were sampled from mature rice plants at BBCH 89. The husks were combined with straw. All samples were stored at -18 °C or below until analysis. Subsamples of rice straw and grain were extracted with methanol and water 69–71 days after sampling, forage samples were extracted 126 / 127 days after sampling.

The TRR were determined by direct combustion analysis of small aliquots of homogenised sample material. The sample material was combusted by means of an automatic sample oxidizer. The $^{14}CO2$ was trapped by an absorption and scintillation liquid, and the collected radioactivity was measured by liquid scintillation counting.

Aliquots of liquid samples were mixed with a sufficient volume of a suitable scintillator prior to measurement. The homogenised samples (rice forage, straw and grain) were extracted with methanol and water. Methanol and water extracts were concentrated and investigated by radio HPLC.

The RRR after solvent extraction was extracted with ammonia and successively solubilized with mixtures of macerozyme / cellulase and tyrosinase / laccase and for grain also with amylase / amyloglucosidase. Residues in solubilizates of the straw specimens (both labels) were concentrated, if necessary centrifuged and analysed by HPLC.

Pyraclostrobin and its desmethoxy metabolite 500M07 were identified by HPLC-MS analysis of purified fractions from rice grain methanol extracts (both labels). Peak assignment in forage, straw and grain methanol extracts was additionally supported by HPLC co-chromatography experiments and retention time comparison with reference items of pyraclostrobin and 500M07 or well-characterised extracts.

Table 5 TRR and extractability of radioactive residues in rice samples

	Chlorophenyl Label			Tolyl Label		
	Forage3	Straw	Grain	Forage [c]	Straw	Grain
DALT [a]	-1	57	57	-1	57	57
TRR determined by direct combustion [mg eq/kg]	2.021	7.271	2.075	1.557	10.776	2.031
TRR calculated [b] [mg eq/kg]	1.921	8.564	1.948	1.622	10.503	2.112
Combined Methanol Extract						
mg eq/kg	1.604	5.193	1.436	1.317	6.038	1.435
% TRR	83.5	60.6	73.7	81.2	57.5	68
Combined Water Extract						
mg eq/kg	0.058	0.672	0.037	0.037	0.762	0.073
% TRR	3	7.8	1.9	2.3	7.3	3.4
ERR [d]						
mg eq/kg	1.662	5.865	1.473	1.354	6.801	1.508
% TRR	86.5	68.5	75.6	83.5	64.8	71.4
RRR [e]						
mg eq/kg	0.259	2.699	0.476	0.268	3.702	0.604
% TRR	13.5	31.5	24.4	16.5	35.2	28.6

[a] DALT = Days After last Treatment

[b] TRR was calculated as the sum of ERR + RRR

[c] Forage was sampled one day before the second application (17 days after first application of chlorophenyl label and 18 days after first application of the tolyl label, thus the samples of forage had received only one application.

[d] ERR = Extractable Radioactive Residue (extraction with methanol and water)

[e] RRR = Residual Radioactive Residue (after solvent extraction with methanol and water)

The extractability with methanol and water was high in rice forage (chlorophenyl label: 86.5% TRR, tolyl label: 83.5% TRR). For rice straw, the extractability was lower with 68.5% TRR (chlorophenyl label) and 64.8% TRR (tolyl label). From rice grain 75.6% TRR (chlorophenyl label) and 71.4% TRR (tolyl label) were extracted by solvent extraction. The major part of the radioactivity was extracted with methanol, while water released only minor portions (1.9–7.8% TRR) from rice forage, straw and grain.

Table 6 Summary of identified and characterised residues in rice samples

	Chlorophenyl label		Tolyl Label		Chlorophenyl label		Tolyl Label		Chlorophenyl label		Tolyl Label	
Designation	Sum of Extracts											
	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[mg/kg]	[% TRR]	[mg/kg]	[% TRR]
Forage	Rice				Rice Straw				Rice Grain			
Total Radioactive Residues in Rice Forage	1.921	100	1.622	100	8.564	100	10.503	100	1.948	100	2.112	100

Designation	Chlorophenyl label		Tolyl Label		Chlorophenyl label		Tolyl Label		Chlorophenyl label		Tolyl Label	
	Sum of Extracts											
	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[mg/kg]	[% TRR]	[mg/kg]	[% TRR]
Forage	Rice				Rice Straw				Rice Grain			
Identified from ERR												
pyraclostrobin	1.165	60.7	1.189	73.3	3.794	44.3	4.356	41.5	1.06	54.4	1.091	51.6
500M07	0.312	16.3	0.14	8.6	1.477	17.3	0.839	8	0.288	14.8	0.218	10.3
Total Identified from ERR	1.478	76.9	1.329	82	5.271	61.5	5.196	49.5	1.348	69.2	1.309	62
Total Characterised by HPLC from ERR	0.273	14.2	0.076	4.7	0.47	5.5	1.643	15.6	0.1	5.1	0.091	4.3
Residue after Solvent Extraction / RRR	0.259	13.5	0.268	16.5	2.699	31.5	3.702	35.2	0.476	24.4	0.604	28.6
Ammonia Solubilizate [a]	0.038	2	0.027	1.7	0.569	6.6	0.741	7.1	0.047	2.4	0.052	2.5
Ammonia Solubilizate [a]	0.021	1.1	0.019	1.2	0.324	3.8	0.475	4.5	0.026	1.3	0.028	1.3
Amylase / Amyloglucosidase Solubilizate									0.029	1.5	0.032	1.5
Macerozyme / Cellulase Solubilizate [b]	0.023	1.2	0.031	1.9	0.249	2.9	0.378	3.6	0.033	1.7	0.056	2.7
Tyrosinase / Laccase Solubilizate [c]	0.013	0.7	0.032	1.9	0.138	1.6	0.162	1.5	0.011	0.6	0.017	0.8
Total Characterised (ERR and RRR)	0.368	19.2	0.185	11.4	1.75	20.4	3.399	32.4	0.245	12.6	0.275	13
Total Identified and Characterised (ERR and RRR)	1.846	96.1	1.514	93.4	7.021	82	8.595	81.8	1.593	81.8	1.584	75
Final Residue	0.114	5.9	0.134	8.3	1.046	12.2	1.543	14.7	0.261	13.4	0.35	16.6
Total Identified and Characterised (ERR and RRR) + Final Residue	1.96	102	1.648	101.6	8.067	94.2	10.138	96.5	1.854	95.2	1.934	91.6

[a] ammonia solubilizates 1 and 2 were pooled, concentrated and HPLC analysed (LC05)

[b] HPLC run of the concentrated macerozyme / cellulase solubilizate (LC05)

[c] HPLC run of the concentrated and centrifuged tyrosinase / laccase solubilizate (LC05)

TRR in rice forage (chlorophenyl label) accounted for 1.921 mg eq/kg, whereby pyraclostrobin and metabolite 500M07 were identified in ERR with 1.165 mg eq/kg (60.7% TRR) and 0.312 mg eq/kg (16.3% TRR), respectively. In total, 1.960 mg eq/kg were identified and characterised (ERR and RRR, including the final residue), representing 102.0% of TRR.

Further components in the methanol and water extracts were characterised by their chromatographic properties which each single peak less or equal to 5.9% TRR. The solubilisation steps released altogether further portions of 4.9% from forage.

TRR in rice forage (tolyl label) accounted for 1.622 mg eq/kg, whereby pyraclostrobin and metabolite 500M07 were identified in ERR with 1.189 mg eq/kg (73.3% TRR) and 0.140 mg eq/kg (8.6% TRR), respectively. In total, 1.648 mg/kg were identified and characterised (ERR and RRR, including the final residue), representing 101.6% of TRR.

TRR in rice straw (chlorophenyl label) accounted for 8.564 mg eq/kg, whereby pyraclostrobin and metabolite 500M07 were identified in ERR with 3.794 mg eq/kg (44.3% TRR) and 1.477 mg eq/kg (17.3% TRR), respectively. In total, 8.067 mg eq/kg were identified and characterised (ERR and RRR, including the final residue), representing 94.2% of TRR.

Further components in the water extracts were characterised by their chromatographic properties which each single peak less or equal to 2.8% TRR. The solubilisation steps released altogether further portions of 14.9% from straw.

HPLC analyses of the ammonia and enzyme solubilizates from the RRR of straw revealed similar to the water extracts, several components eluting in the range between 15 min and 30 min (both labels, HPLC method LC05). These components were characterised by their elution behaviour (each below or equal to 2.8% TRR).

TRR in rice straw (tolyl label) accounted for 10.503 mg eq/kg, whereby pyraclostrobin and metabolite 500M07 were identified in ERR with 4.356 mg eq/kg (41.5% TRR) and 0.839 mg eq/kg (8.0% TRR), respectively. In total, 10.138 mg eq/kg were identified and characterised (ERR and RRR, including the final residue), representing 96.5% of TRR.

Further components in the methanol and water extracts were characterised by their chromatographic properties which each single peak less or equal to 8.0% TRR.

The solubilisation steps released altogether further portions of 16.7% from straw. HPLC analyses of the ammonia and enzyme solubilizates from the RRR of straw revealed similar to the water extracts, several components eluting in the range between 15 min and 30 min (both labels, HPLC method LC05). These components were characterised by their elution behavior (each below or equal to 0.8% TRR).

TRR in rice grain (chlorophenyl label) accounted for 1.948 mg eq/kg, whereby pyraclostrobin and metabolite 500M07 were identified in ERR with 1.060 mg eq/kg (54.4% TRR) and 0.288 mg eq/kg (14.8% TRR), respectively. In total, 1.854 mg eq/kg were identified and characterised (ERR and RRR, including the final residue), representing 95.2% of TRR.

Further components in the methanol and water extracts were characterised by their chromatographic properties which each single peak less or equal to 2.0% TRR. The solubilisation steps released altogether further portions of 7.5% from grain.

TRR in rice grain (tolyl label) accounted for 2.112 mg eq/kg, whereby pyraclostrobin and metabolite 500M07 were identified in ERR with 1.091 mg eq/kg (51.6% TRR) and 0.218 mg eq/kg (10.3% TRR), respectively. In total, 1.934 mg eq/kg were identified and characterised (ERR and RRR, including the final residue), representing 91.6% of TRR.

Further components in the methanol and water extracts were characterised by their chromatographic properties which each single peak less or equal to 2.6% TRR. The solubilisation steps released altogether further portions of 8.8% from grain.

Table 7 Summary of identified components in rice matrices after foliar treatment with ^{14}C-pyraclostrobin (chlorophenyl label and tolyl label)

Metabolite	Forage		Straw		Grain	
	Chloro-phenyl Label mg eq/kg (% TRR)	Tolyl Label mg/kg (% TRR)	Chloro-phenyl Label mg eq/kg (% TRR)	Tolyl Label mg/kg (% TRR)	Chloro-phenyl Label mg eq/kg (% TRR)	Tolyl Label mg/kg (% TRR)
pyraclostrobin	1.165 (60.7)	1.189 (73.3)	3.794 (44.3)	4.356 (41.5)	1.06 (54.4)	1.091 (51.6)
500M07	0.312 (16.3)	0.14 (8.6)	1.477 (17.3)	0.839 (8)	0.288 (14.8)	0.218 (10.3)

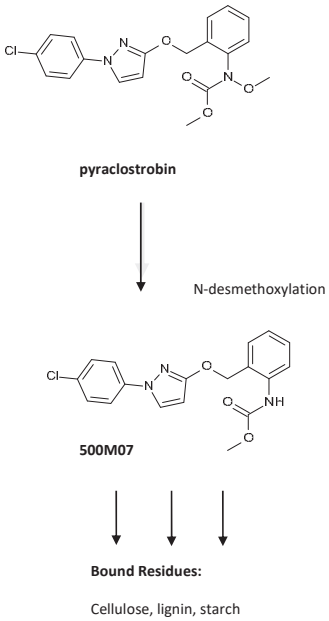


Figure 3 Proposed metabolic pathway of pyraclostrobin in rice

Storage stability investigations were performed in the rice extracts at the beginning and at the end of the study. For all matrices a reanalysis of stored extracts was performed. Initial analyses of rice forage, straw and grain for quantification were carried out within a maximum of 176 days after sampling for the methanol extracts and within 262 days for the water extracts. The stored extracts were reanalysed approximately 11 month after extraction. In all cases, the chromatograms obtained from the stored extracts were in very good accordance with the initial analyses.

Wheat

The metabolic fate and distribution of pyraclostrobin was studied outdoors in wheat following seed treatment [Birk B., Kloeppner U., 2013c, CA 2.2.4/1]. Two experiments were performed using either chlorophenyl-^{14}C-labelled or tolyl-^{14}C-labelled pyraclostrobin. The active substance was applied to the seeds, for each label at a rate of 5 g ai/100 kg seeds. The treated seeds were sown into plastic containers and filled with loamy sand soil. Samples of wheat matrices were collected at growth stage 59; 65 DAT and 63 DAT (forage), GS 73-75; 76 DAT and 74 DAT (hay) and GS 89; 104 DAT and 103 DAT (grain and straw) for the chlorophenyl and tolyl label. All samples (forage, hay, straw and grain) were homogenised with a knife mill along with dry ice. After sublimation of the dry ice, the samples were weighed, mixed, divided into aliquots and radioassayed.

The TRR were determined by direct combustion analysis of small aliquots of homogenised sample material. The sample material was combusted by means of an automatic sample oxidizer. The $^{14}CO2$ was trapped by an absorption and scintillation liquid, and the collected radioactivity was measured by liquid scintillation counting. Aliquots of liquid samples were mixed with a sufficient volume of a suitable scintillator prior to measurement.

The homogenised straw samples were extracted with methanol and water. Subsequently the methanol extracts were partitioned with cyclohexane and ethyl acetate. The cyclohexane phases were fractionated using a SPE column and the fractions containing the highest radioactivity amount were investigated by HPLC using two different HPLC methods.

For metabolite assignment, the retention times of peaks in the HPLC runs of the isolated straw fractions were compared to those of authentic reference compounds that were analysed with the same HPLC methods. For straw the TRR was also calculated by summarising the ERR) and the RRR after solvent extraction.

Table 8 Total radioactive residues in wheat samples

Wheat matrix	Sampling Interval (DAT [a])	TRR determined [mg eq/kg]	TRR calculated [b] [mg eq/kg]
Chlorophenyl Label			
Forage	65	0.0008 [c]	n.p.
Hay	76	0.0015 [c]	n.p.
Straw	104	0.0051 [c]	0.0043
Grain	104	0.0008	n.p.
Tolyl Label			
Forage	63	0.0005	n.p.
Hay	74	0.0014	n.p.
Straw	103	0.0045	0.0038
Grain	103	0.0011	n.p.

[a] DAT = Days After Treatment (sowing of the treated seed)

[b] TRR was calculated as the sum of ERR + RRR

[c] mean value of the two measurements

n.p. = not performed

Since the amount of radioactive residues was below 0.01 mg eq/kg in all matrices, no further investigations regarding identification, characterisation and quantification were performed for forage, hay and grain. Nevertheless a solvent extraction was performed to get information about potential metabolites formed and it was possible to isolate one metabolite fraction from the methanol extract of straw from both labels.

Table 9 Extractability of radioactive residues in wheat samples

Matrix	Combined methanol extracts		Combined water extracts		ERR		RRR		TRR calculated [a]
	[mg/kg]	[% TRR]	[mg/kg]	[% TRR]	[mg/kg]	[% TRR]	[mg/kg]	[% TRR]	
Chlorophenyl Label									
Straw	0.0019	44.1	0.0008	19.3	0.0027	63.3	0.0016	36.7	0.0043
Tolyl Label									
Straw	0.0014	37.4	0.0003	9.0	0.0018	46.4	0.0021	53.6	0.0038

[a] TRR was calculated as the sum of ERR + RRR

Retention time comparison with reference items suggested that this peak represents the parent compound pyraclostrobin and / or the metabolite 500M07 (BF 500-3). Since pyraclostrobin and 500M07 have similar retention times in both HPLC methods, the peak may contain one or both of the compounds. The identical retention times in the second HPLC method were confirmed by a co-chromatography experiment performed with the unlabelled reference items pyraclostrobin and 500M07.

The isolated SPE fractions probably containing pyraclostrobin and / or 500M07 represented about 0.0005 mg eq/kg or 12.7% TRR for the chlorophenyl label and about 0.0004 mg eq/kg or 9.6% TRR for the tolyl label.

Table 10 Summary of characterised residues of wheat straw and final residue

Designation	Chlorophenyl label		Tolyl label	
	[mg/kg]	[% TRR]	[mg/kg]	[% TRR]
Total radioactive residues in wheat straw	0.0043	100	0.0038	100
Characterised in the methanol extract				
Radioactive residues in the cyclohexane phase	0.0009	20.4	0.0006	15.1
Characterised in the cyclohexane phase by SPE fractionation				
Fraction 1	<0.0001	<0.1	<0.0001	0.1
Fraction 2	0.0001	1.2	<0.0001	0.3
Fraction 3	<0.0001	0.4	<0.0001	0.6
Fraction 4	<0.0001	0.8	<0.0001	1.1
Fraction 5: Containing pyraclostrobin and / or 500M07	0.0005	12.7	0.0004	9.6
Fraction 6	0.0002	4.5	0.0001	2.7
Sum of characterised residues in the cyclohexane Phase (sum fractions 1-6)	0.0008	19.6	0.0006	14.4
Ethyl acetate phase	0.0007	17.1	0.0005	13.6
Water phase	0.0004	8.2	0.0003	8.7

Designation	Chlorophenyl label		Tolyl label	
	[mg/kg]	[% TRR]	[mg/kg]	[% TRR]
Total characterised in the methanol extract (sum fractions 1-6 + ethyl acetate and water phase)	0.0019	44.9	0.0014	36.7
Total characterised in the water extract	0.0008	19.3	0.0003	9
Total characterised from ERR	0.0028	64.1	0.0018	45.7
Final residue (RRR)	0.0016	36.7	0.0021	53.6
Total characterised (ERR) + final residue	0.0043	100.8	0.0038	99.3

Storage stability investigations on pyraclostrobin and its metabolites were already performed within a wheat metabolism study (Reinhardt, K., 1999/11137) and within a rotational crop study (Veit, P., 1999/11829).

Additionally, the HPLC analyses performed in this study were carried out within two months after extraction. Therefore, concerning the current study no further storage stability investigations were necessary.

Animal metabolism

In addition to the information provided in 2003 JMPR, the current Meeting received a microsomal metabolism study on goats and cow as well as a metabolism study on fish, but these studies were not summarised.

Residues in Rotational Crops

Confined rotational crop studies

The metabolism of [^{14}C] - pyraclostrobin was investigated (Rabe and Kalyon, 2014a, CA 2.4.1/1) in the rotational crops radish, wheat and lettuce from three consecutive rotations.

^{14}C-pyrazole labelled pyraclostrobin was applied at the rate of 500 g ai/ha to bare soil. After application, the soil was aged for 32 days. After the soil aging period was completed, ploughing was simulated by mixing the treated soil with the help of a concrete mixer. Subsequently the crops radish, wheat and lettuce were sowed or planted.

The immature crops were harvested after 42 days, processed and analysed by combustion and radioactivity measurement for the TRR. In addition, soil samples were taken after ploughing and harvest of the crops.

For the determination of the ERR, the homogenised plant material was extracted three times with methanol and two times with water. After solvent extraction and partition procedures HPLC analyses (Method LC02) were carried out for the concentrated water phases of the methanol extracts with a sufficient level of radioactivity.

The RRR were characterised by combustion of the dried and homogenised extraction residues. The TRR in plant material were obtained by calculating the sum of ERR and RRR (TRR calculated) and additionally by combustion of sample aliquots (TRR Measured). The soil sample after aging and ploughing was determined by direct combustion analysis followed by LSC. All calculations throughout the present study were based on the TRR calculated.

The TRR of all matrices were very low and ranged from 0.003 mg eq/kg (radish root) to 0.016 mg eq/kg (lettuce plant). The TRR determined by combustion analysis showed no major difference to the TRR calculated by summing up the extractable and the residue radioactivity. These results indicate that there was no pronounced translocation of pyraclostrobin or its degradation products from the soil into the plants.

Table 11 Total radioactive residues in rotational crops after ^{14}C-pyraclostrobin treatment

Matrix	Days after sowing / planting	TRR measured [a] [mg eq/kg]	TRR calculated [b] [mg eq/kg]
Plant back interval: 32 DAT			
Radish leaf	42	0.011	0.010
Radish root	42	0.003	0.003
Wheat forage	42	0.015	0.014
Lettuce plant	42	0.017	0.016

[a] TRR was determined by direct combustion

[b] TRR was calculated as the sum of ERR (extraction with methanol and water) + RRR

Due to the very low TRR level in soil samples already after ploughing at 32 DAT, the soil samples collected at 74 DAT after harvest of the mature crops were not further analysed. A concentration of 0.140 mg/kg eq was found in the soil after ploughing at 32 DAT.

For all rotational crop matrices the methanol extract and the water extract were summarised as ERR. The major portions of the radioactive residues were extracted with methanol (46.9 to 63.3% TRR). The extraction with water released additional 3.9 to 8.5% TRR.

Table 12 Extractability of radioactive residues in rotational crops after ^{14}C-pyraclostrobin treatment

Matrix	TRR calculated [b]	Methanol extract		Water extract		ERR [b]		RRR	
	[mg eq/kg]	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]
Plant back interval: 32 DAT									
Radish leaf	0.010	0.006	63.3	0.001	8.5	0.007	71.8	0.003	28.2
Radish root	0.003	0.002	46.9	< 0.001	8.0	0.002	55.0	0.002	45.0
Wheat forage	0.014	0.008	59.0	0.001	3.9	0.009	62.9	0.005	37.1
Lettuce plant	0.016	0.008	50.8	0.001	8.0	0.009	58.8	0.006	41.2

[a] TRR was calculated as the sum of ERR (extraction with methanol and water) + RRR and set at 100% for all further calculations.

[b] Extractable Radioactive Residue (ERR) was calculated as the sum of methanol and water extract.

The extractability of radish leaf with methanol was good and accounted for 63.3% TRR. Subsequent extraction with water released only minor amounts of 8.5% TRR. Thus, the ERR from radish leaf was 71.8% TRR. The RRR accounted for 0.003 mg eq/kg and was therefore not further investigated.

The extractability of radish root with methanol accounted for 46.9% TRR. Subsequent extraction with water released only minor amounts of 8.0% TRR. Thus, the ERR from radish root was 55.0% TRR. The RRR accounted for 0.002 mg eq/kg. The extracts and the residue after solvent extraction were not further investigated due to low levels of radioactivity.

The extractability of wheat forage with methanol accounted for 59.0% TRR. Subsequent extraction with water released only minor amounts of 3.9% TRR. Thus, the ERR from wheat forage was 62.9% TRR. The residue after solvent extraction (RRR) accounted for 0.005 mg eq/kg and was therefore not further investigated.

The extractability of lettuce plant with methanol accounted for 50.8% TRR. Subsequent extraction with water released only minor amounts of 8.0% TRR. Thus, the ERR from lettuce plant was 58.8% TRR. The RRR accounted for 0.006 mg eq/kg and was therefore not further investigated.

In wheat forage and lettuce plant, higher portions of the radioactive residues were water-soluble, and lower portions were detected in the organic phase. In radish leaf, comparable portions were detected in the organic and in the water phase.

Table 13 Partition characteristics of radioactive residues extracted with methanol from rotational crop samples

Matrix	Methanol extract		Isohexane partition				Recovery [a]
			Organo-soluble		Water-soluble		
	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[%]
Radish leaf	0.006	63.3	0.003	29.9	0.003	26.9	89.726
Radish root	0.002	46.9	n.a.				-
Wheat forage	0.008	59.0	0.002	17.3	0.005	32.0	83.576
Lettuce plant	0.008	50.8	0.002	15.2	0.006	38.6	106.087

[a] Recovery calculated as (Organo-soluble + Water-soluble) [mg/kg] x 100 / Methanol Extract [mg/kg]

n.a. = not applied

The concentrated water phases of the methanol extracts of radish leaf, wheat forage and lettuce plant were analysed by HPLC and resulted in a metabolite pattern of one polar peak at a retention time of approximately 4.3 min and three peaks at approximately 20.2 min, 21.7 min and 22.8 min. An assignment of the peaks to a structure was not possible due to the low levels of radioactive residues. All peaks were below the trigger of 0.01 mg eq/kg. The Residual Radioactive Residues (RRR) were low with values ranging from 0.002 mg eq/kg to 0.006 mg eq/kg.

Table 14 Summary of identified and characterised radioactive residues extracted from radish leaf, wheat leaf and lettuce plant

	Radish leaf		Wheat leaf		Lettuce plant	
Designation	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]
Total Radioactive Residue (TRR)	0.01	100	0.014	100	0.016	100
Characterised from Concentrated Water Phase of Methanol Extract by HPLC						
Peak at 4.3 min	< 0.001	4.7	0.001	3.7	0.001	7.3

	Radish leaf		Wheat leaf		Lettuce plant	
Designation	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]	[mg eq/kg]	[% TRR]
Peak at 20.2 min	0.001	8.3	0.001	7.9	0.001	9
Peak at 21.7 min	0.001	10.5	0.003	20.4	0.003	17.4
Peak at 22.8 min	< 0.001	3.4			0.001	5
Total Characterised from ERR by HPLC	0.003	26.9	0.005	32	0.006	38.6
Isohexane Phase of Methanol Extract	0.003	29.9	0.002	17.3	0.002	15.2
Water Extract	0.001	8.5	0.001	3.9	0.001	8
Total Characterised from ERR	0.007	65.3	0.008	53.2	0.009	61.8
Residual Radioactive Residue (RRR)	0.003	28.2	0.005	37.1	0.006	41.2
Sum of RRR and Total Characterised from ERR	0.01	93.5	0.013	90.3	0.015	103

Radish leaf: In total, 65.3% of the TRR were characterised from the ERR by HPLC or by their extractability. Summarised with the Residual Radioactive Residue, the radioactive residues accounted for 0.010 mg/kg or 93.5% TRR.

Wheat forage: In total, 53.2% of the TRR were characterised from the ERR by HPLC or by their extractability. Summarised with the Residual Radioactive Residue, the radioactive residues accounted for 0.013 mg eq/kg or 90.3% TRR.

Lettuce plant: In total, 61.8% of the TRR were characterised from the ERR by HPLC or by their extractability. Summarised with the Residual Radioactive Residue, the radioactive residues accounted for 0.015 mg eq/kg or 103.0% TRR. In all matrices analysed by HPLC, the same peaks were detected in the chromatograms. Due to the low levels of radioactivity in the plants, no structure could be assigned to the peaks.

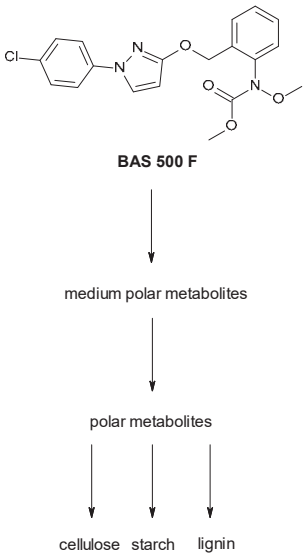


Figure 4 Metabolic pathway of pyraclostrobin in rotational crops

RESIDUE ANALYSIS

Analytical methods

The Meeting received analytical method descriptions and validation data for pyraclostrobin and its metabolites in plant and animal matrices, and these are summarised below. Relevant information on analytical methods for plant matrices has already been described in previous JMPRs. In addition to the information provided previously, several analytical methods have been developed and/or validated in the past few years. One important purpose of these studies (which were provided during the EU renewal process to Germany acting as Rapporteur Member State) was to provide state-of-the-art methods being fully validated according to recent

guideline requirements. Parts of the studies were explicitly requested during evaluations of crop expansions or import tolerance petitions.

Table 15 Summary of analytical methods for pyraclostrobin and its metabolites, developed for plant and animal matrices

Matrix	Analyte	Method	Principle	LOQ (mg/kg)	Reference
Plant matrix-coffee (grain), soybean (grain) and wheat (grain)	Pyraclostrobin 500M07	SOP-PA.0243	methanol/ water/hydrochloric acid mixture cleaned by C18 reverse-phase LC-MS/MS	0.02 0.02	CA 3.1/1
Plant matrix-green coffee and green tea	Pyraclostrobin 500M07	BASF method 421/0	methanol/water partitioning with cyclohexane reverse-phase LC-MS/MS	0.02 0.05	CA 3.1/2
Plant matrix-rice	Pyraclostrobin 500M07	BASF Method 535/1	methanol/ water/2N HCl LC-MS/MS		Lehman *et al*., 2006
Animal matrices	Pyraclostrobin 500M04 500M85	BASF Method No. 446/2 (L0058/03)	Acetonitrile/ iso-hexane H2O/NaOH oxidation Acidification LC-MS/MS	0.01 0.01 0.01	CA 3.2/1

Method SOP-PA.0243

This LC-MS/MS methods for measuring residues of Pyraclostrobin and its 500M07 metabolite in crops was reported by Leite (2005a, CA 3.1/1).

In this method, after extraction of the plant material with a methanol/ water/hydrochloric acid mixture and subsequent centrifugation of an aliquot, an aliquot of the supernatant is transferred into a culture tube containing water. For purification, liquid/liquid partitioning with cyclohexane is performed. The cyclohexane is evaporated to dryness and the residue dissolved in methanol/water for LC-MS/MS quantification. For pyraclostrobin, the transition ions m/z = 388 -> 194 and m/z = 388-> 163 and for 500M07m/z = 358 -> 164 and m/z = 358 -> 132 can be used for quantification.

The method proved to be suitable for the analysis of pyraclostrobin and 500M07in coffee (grain), soya bean (grain) and wheat (grain) to a limit of quantitation of 0.02 mg/kg for each analyte. In all matrices tested, the mean recovery values were between 70 and 110%.

Table 16 Recovery results of pyraclostrobin and 500M07

Crop, Commodity	Test Substance	Fortification level (mg/kg)	No. of tests	Average Recovery (%)	Rel. Standard Deviation (%)
Coffee, grain	pyraclostrobin	0.02, 2.0	10	101 [a] / 104 [b])	5.0 [a] / 4.0 [b]
	500M07	0.02, 2.0	10	96 [c] / 96 [d]	5.0 [c] / 4.0 [d]
Soybean, grain	pyraclostrobin	0.02, 2.0	10	92 [a] / 92 [b]	5.0 [a] / 4.0 [b]
	500M07	0.02, 2.0	10	85 [c] / 85 [d]	4.0 [c] / 4.0 [d]
Wheat, grain	pyraclostrobin	0.02, 2.0	10	103 [a] / 106 [b]	6.0 [a] / 5.0 [b]
	500M07	0.02, 2.0	10	100 3) / 100 [d]	7.0 [c] / 6.0 [d]

[a] for transition 388 → 194;

[b] for transition 388 → 163;

[c] for transition 358 → 164;

[d] for transition 358 → 132

Good linearity was observed in the range of 0.25 to 5.0 ng/mL for pyraclostrobin and 500M07.

The method determines parent pyraclostrobin and its metabolite 500M07in coffee (grain), soybean (grain) and wheat (grain). There were no known interferences from plant components or from reagents, solvents and glassware used.

The limit of quantification was defined by the lowest fortification level successfully tested, which was 0.02 mg/kg for each analyte in all sample materials.

The relative standard deviations (RSD, %) for all commodities and all fortification levels were well below 20%. Therefore, the repeatability of this method is adequate for the purposes of residue data collection and enforcement of MRLs.

The reproducibility of the method was not estimated as identical samples were not evaluated by an independent laboratory. However, based on the performance of the method, its reproducibility is expected to be good.

The method for analysis of pyraclostrobin and its metabolite 500M07 uses LC-MS/MS for final determination, which is a modern and highly specific technique. The limit of quantitation is 0.02 mg/kg for each analyte. It could be demonstrated that the method fulfils the requirements with regard to specificity, repeatability, limit of quantitation and recoveries.

BASF method 421/0

During an independent laboratory validation of the enforcement method for coffee and tea (BASF analytical method 421/0), pyraclostrobin and its metabolite 500M07 were extracted from plant matrices (green coffee and green tea) using a mixture of methanol/water 70/30. A 0.5% aliquot of the extract was removed and cleaned by C18; Polar Plus micro-column. The final determination of pyraclostrobin and its metabolite 500M07 was performed by HPLC-MS/MS.

The recoveries of pyraclostrobin ranged from 79.3 to 86.6% at the transition m/z 388 → m/z 194 and at the transition m/z 388 → m/z 163. The CV ranged from 2.9 to 5.6% and 3.0 to 5.9%, respectively.

Table 17 Recoveries of pyraclostrobin in plant matrices

Matrix	Fortification level (mg/kg)	Transition m/z 388 → m/z 194		Transition m/z 388 → m/z 163	
		Mean recovery (%)	CV (%)	Mean recovery (%)	CV (%)
Green tea	0.02 (n=5)	79.9	8.6	78.9	8.9
	0.2 (n=5)	80.3	2.6	79.6	2.8
	Overall Mean (n=10)	80.1	5.6	79.3	5.9
Green coffee	0.02 (n=5)	87.7	4.0	87.0	4.4
	0.2 (n=5)	85.4	1.8	85.2	1.6
	Overall Mean (n=10)	86.6	2.9	86.1	3.0

Table 18 Recoveries of 500M07 in plant matrices

Matrix	Fortification level (mg/kg)	Mean recovery (%)	CV (%)
Transition m/z 358 → m/z 164			
Green tea	0.05 (n=5)	72.6	4.5
	0.5 (n=5)	97.0	7.2
	Overall Mean (n=10)	84.8	5.9
Green coffee	0.05 (n=4)	84.8	5.7
	0.5 (n=5)	84.2	8.6
	Overall Mean (n=9)	84.5	7.2
Transition m/z 358 → m/z 132			
Green tea	0.05 (n=5)	87.5	9.6
	0.5 (n=5)	86.8	1.3
	Overall Mean (n=10)	87.2	5.5
Green coffee	0.05 (n=5)	81.7	10.8
	0.5 (n=5)	89.4	1.4
	Overall Mean (n=10)	85.6	6.1

Good linearity was observed in the range of 0.5 to 5.0 ng/ml pyraclostrobin. Coefficients of determination (R2) were in the linearity experiments always higher than 0.999.

Due to matrix effects, metabolite BF 500-3 was tested by 0.05 mg/kg at transition m/z 358 → m/z 132.

The limit of quantitation was defined by the lowest fortification level successfully tested which was 0.02 mg/kg except of the metabolite BF 500-3, which was tested by 0.05 mg/kg at transition m/z 358 → m/z 132 due to matrix effects.

In context of this ILV study, the reproducibility of the BASF method 421/0 was tested by a laboratory not involved in method development. As can be seen from the results, a high reproducibility was achieved.

The results show that BASF method No. 421/0 is suitable to determine pyraclostrobin and its metabolite BF 500-3 (500M07) in the plant matrices green coffee and green tea at a limit of quantitation of 0.02 mg/kg (except for the metabolite BF 500-3, which was tested by 0.05 mg/kg at transition 358 → 132 due to matrix effects).

BASF Method 535/1(L0076/01)

This LC-MS/MS method for measuring residues of pyraclostrobin and its metabolite (500M07) in rice samples (Lehman *et al*., 2006). Rice matrices of the chlorophenyl label were extracted following the protocol of BASF residue method 535/1 and QuEChERS method. Compared to the solvent extractions of the metabolism investigations, similar amounts of the parent compound and 500M07 were extracted using BASF residue method 535/1. The concentrations of both metabolites ranged from 83–105% compared to the values found during metabolism investigations. QuEChERS method extracted somewhat lower amounts of parent compound and 500M07 from forage and straw (46–92%). From grain it extracted 75% of pyraclostrobin and 114% of metabolite 500M07.

Table 19 Amounts of pyraclostrobin and 500M07 extracted from rice samples with different extraction methods (chlorophenyl label)

Matrix	Forage			Straw			Grain		
Extraction Method	Metabolism Investigation	BASF Method 535/1	QuEChERS Method	Metabolism Investigation	BASF Method 535/1	QuEChERS Method	Metabolism Investigation	BASF Method 535/1	QuEChERS Method
Metabolite	[mg/kg]								
pyraclostrobin	1.165 (100%)	1.228 (105%)	0.697 (59.8%)	3.794 (100%)	3.331 (87.8%)	1.728 (45.5%)	1.059 (100%)	0.875 (82.6%)	0.799 (75.4%)
500M07	0.312 (100%)	0.319 (102%)	0.287 (92.0%)	1.477 (100%)	1.355 (91.7%)	0.713 (48.3%)	0.288 (100%)	0.285 (99.0%)	0.329 (114%)

BASF Method No. 446/2 (L0058/03) (pyraclostrobin and its metabolites – animal tissues, milk and eggs)

This LC-MS/MS method for measuring residues of pyraclostrobin and its metabolites (500M04 and 500M85) in animal tissues, milk and eggs was reported by Eilers and Taraschewski (2014a, CA 3.2/1).

In this method, after a partition into acetonitrile/iso-hexane the total residues were cleaved by boiling in aqueous sodium hydroxide to yield hydroxpyrazole(s), which can be extracted using ethyl acetate. After acidification and phase separation, the organic layer was taken. The final determination of 500M04 (BF 500-5) and 500M85 (BF 500-8) is performed by HPLC-MS/MS. Pyraclostrobin was determined as 500M04; for 500M04 the ion transitions m/z = 195 → 117 and m/z = 195 → 153 and for 500M85 the transitions m/z = 211 → 138 and m/z = 211 → 166 can be used for quantification.

The method proved to be suitable for analysis of pyraclostrobin and its metabolites 500M04 (BF 500-5) and 500M85 (BF 500-8) in animal matrices at a limit of quantitation of 0.01 mg/kg. In all matrices tested, the mean recovery values were between 62 and 95%.

Table 20 Recovery results of pyraclostrobin, 500M04 and 500M85

Matrix	Test Substance	Fortification level (mg/kg)	No. of tests	Average Recovery (%)	Rel. Standard Deviation (%)
Muscle	pyraclostrobin	0.01, 0.1	10 (5 per level)	77.7 [a] / 77.5 [b]	4.3 [a] / 4.2 [b]
	500M04	0.01, 0.1	10 (5 per level)	86.8 [c] / 86.6 [d]	7.5 [c] / 7.0 [d]
	500M85	0.01, 0.1	10 (5 per level)	62.1 [e] / 61.7 [f]	2.8 [e] / 3.2 [f]
Kidney	pyraclostrobin	0.01, 0.2	10 (5 per level)	88.5 [a] / 84.8 [b]	3.8 [a] / 2.7 [b]
	500M04	0.01, 0.2	10 (5 per level)	81.1 [c] / 81.2 [d]	10.4 [c] / 8.9 [d]
	500M85	0.01, 0.2	10 (5 per level)	62.2 [e] / 62.2 [f]	8.2 [e] / 8.7 [f]
Liver	pyraclostrobin	0.01, 1.0	10 (5 per level)	88.1 [a] / 92.1 [b]	6.7 [a] / 9.3 [b]
	500M04	0.01, 1.0	10 (5 per level)	83.5 [c] / 84.2 [d]	8.7 [c] / 9.1 [d]
	500M85	0.01, 1.0	10 (5 per level)	78.7 [e] / 80.0 [f]	7.8 [e] / 7.5 [f]
Fat	pyraclostrobin	0.01, 0.1	10 (5 per level)	83.4 [a] / 83.6 [b]	7.8 [a] / 6.5 [b]
	500M04	0.01, 0.1	10 (5 per level)	73.8 [c] / 74.3 [d]	7.8 [c] / 7.6 [d]
	500M85	0.01, 0.1	10 (5 per level)	67.2 [e] / 67.4 [f]	8.2 [e] / 7.9 [f]
Milk	pyraclostrobin	0.01, 0.1	10 (5 per level)	91.6 [a] / 90.1 [b]	4.6 [a] / 4.9 [b]
	500M04	0.01, 0.1	10 (5 per level)	89.7 [c] / 94.5 [d]	4.9 [c] / 6.9 [d]
	500M85	0.01, 0.1	10 (5 per level)	90.2 [e] / 90.1 [f]	8.2 [e] / 7.8 [f]
Egg	pyraclostrobin	0.01, 0.1	10 (5 per level)	76.4 [a] / 76.9 [b]	7.4 [a] / 5.7 [b]

Matrix	Test Substance	Fortification level (mg/kg)	No. of tests	Average Recovery (%)	Rel. Standard Deviation (%)
	500M04	0.01, 0.1	10 (5 per level)	87.5 [c] / 87.6 [d]	5.7 [c] / 6.3 [d]
	500M85	0.01, 0.1	10 (5 per level)	80.3 [e] / 79.6 [f]	6.7 [e] / 5.1 [f]

[a] for transition m/z 195 → 117;

[b] for transition m/z 195 → 153;

[c] for transition m/z 195 → 117;

[d] for transition m/z 195 → 153; [e] for transition m/z 211 → 138; [f] for transition m/z 211 → 166

The linearity of the HPLC-MS/MS detector was tested using six standard solutions at concentrations between 0.05 and 2.5 ng/mL. Standards were injected in duplicate and the response plotted against concentration. Linear correlations with coefficients ≥0.99 were obtained for pyraclostrobin and its metabolites 500M04 and 500M85.

The method L0058/03 determines residues of pyraclostrobin and its metabolites 500M04 and 500M85 in animal matrices. Significant interferences (> 30% of LOQ) were not observed at the retention times and mass transitions considered for each analyte. HPLC-MS/MS, using two mass transitions, is a highly specific detection technique and therefore a confirmatory technique is not required.

The limit of quantification was 0.01 mg/kg for all analytes. The relative standard deviations (RSD, %) for all commodities and all fortification levels were well below 20%. The reproducibility of the method was not estimated as identical samples were not evaluated by an independent laboratory. However, based on the performance of the method, its reproducibility is expected to be good.

The method for analysis of pyraclostrobin and its metabolites in animal matrices uses LC-MS/MS for final determination, which is a modern and highly specific technique. The limit of quantitation is 0.01 mg/kg for each analyte. It could be demonstrated that method L0058/03 fulfils the requirements with regard to specificity, repeatability, limit of quantification and recoveries and is therefore applicable to correctly determine residues of pyraclostrobin and its metabolites 500M04 (BF 500-5) and 500M85 (BF 500-8) in animal matrices.

Stability of residues in stored analytical samples

The stability of residues of pyraclostrobin in stored samples was evaluated by the 2004 JMPR, and these previously submitted stability studies are considered adequate for the residue trials submitted to the current Meeting. No further stability data were submitted to the current Meeting.

Stability of residues in samples extracts

For the active substance pyraclostrobin, investigations were performed using sample extracts out of ^{14}C-metabolism studies and fortified samples during the validation of the residue analytical methods. In none of the extracts investigated any degradation was observed. From the availabel data, it can be concluded that pyraclostrobin is stable in sample extracts or solutions when stored during residue analysis.

USE PATTERNS

Pyraclostrobin is registered for use on a large number of crops in many countries. Information on registered uses together with labels for pyraclostrobin was provided to the Meeting.

Table 21 Registered uses of pyraclostrobin in pome fruits

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Pome fruit	Austria	128 g/kg WG (BAS 516 04 F)	spraying	4	8 - 14	---	500/m crown height	0.102	7
Pome fruit	Czech Republic	128 g/kg WG (BAS 516 04 F)	spraying	4	8 - 14	0.02	500 - 1000	0.102	7
Pome fruit	Germany	128 g/kg WG (BAS 516 04 F)	spraying	4	8 - 14	---	500/m crown height	0.102	7
Pome fruit	Hungary	40 g/kg WG (BAS 584 01 F)	spraying	4	10	0.013	800 - 1200	0.08 - 0.1	35
Pome fruit	Slovakia	67 g/kg WG (BAS 516 07 F)	spraying	3	---	0.018	300 - 1500	0.05	15

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Pome fruit	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	4	7 - 14	---	max 127,000	0.133 - 0.178	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.19	min 93.5		
Pome fruit	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	4	7 - 14	---	max 127,000	0.166	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.178	min 93.5		
Pome fruit	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	4	7 - 14	---	max 127,000	0.07 - 0.096	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.103	min 93.5		
Apple	Australia	128 g/kg WG (BAS 516 04 F)	spraying	3	7 - 10	0.007	1500 - 2000	0.077 - 0.102	14
Apple	Belgium	128 g/kg WG (BAS 516 04 F)	spraying	4	7 - 10	0.034	300	0.102	7
Apple	Belgium	40 g/kg WG (BAS 584 01 F)	spraying	4	8 - 10	0.033	300 - 1000	0.1	35
Apple	Bulgaria	128 g/kg WG (BAS 516 04 F)	spraying	3	8 - 12	0.005	2000 - 4000	0.102	7
Apple	Brazil	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	4	7 - 14	0.01	1000	0.1	14
Apple	Brazil	50 g/kg WG (BAS 518 01 F)	spraying	4	7 - 14	0.013	1000	0.125	21
Apple	Brazil	333 g/L SC (BAS 703 02 F)	spraying	4	7 - 14	0.013	1000	0.067 - 0.133	14
Apple	Chile	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	2	10 - 15	0.012	1500 - 2000	0.125 - 0.175	30
Apple	Czech Republic	40 g/kg WG (BAS 584 00 F)	spraying	3	---	0.033	300 - 1000	0.1	35
Apple	Finland	67 g/kg WG (BAS 516 07 F)	spraying	3	10	0.009	600 - 1000	0.054	10
Apple	France	40 g/kg WG (BAS 584 00 F)	spraying	2	7 - 10	---	---	0.1	35
Apple	Hungary	128 g/kg WG (BAS 516 04 F)	spraying	4	8	0.013	800 - 1000	0.102	7
Apple	Hungary	40 g/kg WG (BAS 584 01 F)	spraying	4	10	0.013	800 - 1200	0.08 - 0.1	35
Apple	Ireland	128 g/kg WG (BAS 516 04 F)	spraying	4	10 - 14	0.034	300 - 1500	0.102	7
Apple	Italy	250 g/L EC (BAS 500 13 F)	spraying	3	8 - 14	0.007	1500	0.1	21
Apple	Italy	128 g/kg WG (BAS 516 04 F)	spraying	3	7 - 14	0.007	1500	0.102	7
Apple	Italy	40 g/kg WG (BAS 584 00 F)	spraying	1 - 3	8 - 14	0.007	1500	0.1	35
Apple	Japan	68 g/kg WG (BAS 516 05 F)	spraying	3	---	0.012	2000 - 7000	0.068 - 0.238	1
Apple	Kazakhstan	128 g/kg WG (BAS 516 04 F)	spraying	4	10 - 14	0.026	400 - 1000	0.102	7
Apple	Mexico	250 g/L EC (BAS 500 13 F)	spraying	1 - 2	7	0.063	200 - 500	0.125	60

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Apple	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 3	7	0.012	950 - 1050	0.086 - 0.115	14
Apple	Netherlands	128 g/kg WG (BAS 516 04 F)	spraying	4	7 - 10	---	---	0.102	7
Apple	Poland	128 g/kg WG (BAS 516 04 F)	spraying	2	8 - 14	0.02	500 - 750	0.102	7
Apple	Poland	40 g/kg WG (BAS 584 01 F)	spraying	2	---	---	---	0.08 - 0.1	35
Apple	Portugal	128 g/kg WG (BAS 516 04 F)	spraying	3	7 - 14	---	---	0.102	7
Apple	Romania	128 g/kg WG (BAS 516 04 F)	spraying	4	7 - 12	0.018	500 - 1500	0.09	7
Apple	Romania	40 g/kg WG (BAS 584 01 F)	spraying	4	7 - 12	0.018	500 - 1500	0.09	35
Apple	Russian Federation	128 g/kg WG (BAS 516 04 F)	spraying	4	10 - 14	0.026	400 - 1000	0.102	7
Apple	Russian Federation	40 g/kg WG (BAS 584 01 F)	spraying	3	10 - 14	0.01	1000	0.102	20
Apple	Slovakia	40 g/kg WG (BAS 584 00 F)	spraying	3	10 - 14	0.01	1000	0.08 - 0.1	35
Apple	Slovenia	128 g/kg WG (BAS 516 04 F)	spraying	3	12	0.017	600 - 1000	0.1	7
Apple	Slovenia	40 g/kg WG (BAS 584 01 F)	spraying	3	10	---	---	0.1	35
Apple	Spain	128 g/kg WG (BAS 516 04 F)	spraying	1 - 3	30	0.01	1000	0.102	7
Apple	Ukraine	128 g/kg WG (BAS 516 04 F)	spraying	3	---	0.02	500 - 1000	0.102	20
Apple	Ukraine	40 g/kg WG (BAS 584 01 F)	spraying	4	---	0.02	500 - 1000	0.102	30
Apple	United Kingdom	128 g/kg WG (BAS 516 04 F)	spraying	4	---	0.02	500 - 1000	0.08 - 0.1	7
Apple	United Kingdom	40 g/kg WG (BAS 584 00 F)	spraying	4	7 - 10	0.04	250 - 1500	0.1	35
Medlar	Hungary	40 g/kg (BAS 584 01 F)	spraying	4	10	0.013	800 - 1200	0.08 - 0.1	35
Pear	Australia	128 g/kg WG (BAS 516 04 F)	spraying	3	7 - 10	0.007	1500 - 2000	0.077 - 0.102	14
Pear	Belgium	128 g/kg WG (BAS 516 04 F)	spraying	4	7 - 10	0.034	300	0.102	7
Pear	Belgium	40 g/kg WG (BAS 584 01 F)	spraying	4	8 - 10	0.033	300 - 1000	0.1	35
Pear	Bulgaria	128 g/kg WG (BAS 516 04 F)	spraying	3	8 - 12	0.005	2000 - 4000	0.102	7
Pear	Chile	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	2	10 - 15	0.012	1500 - 2000	0.125 - 0.175	30
Pear	Hungary	128 g/kg WG (BAS 516 04 F)	spraying	4	8	0.013	800 - 1000	0.102	7
Pear	Hungary	40 g/kg WG (BAS 584 01 F)	spraying	4	10	0.013	800 - 1200	0.08 - 0.1	35
Pear	Ireland	128 g/kg WG (BAS 516 04 F)	spraying	4	10 - 14	0.034	300 - 1500	0.102	7
Pear	Italy	200 g/kg WG (BAS 500 02 F)	spraying	3	8	0.007	1500	0.1	21
Pear	Italy	250 g/L EC (BAS 500 13 F)	spraying	3	8 - 14	0.007	1500	0.1	21
Pear	Italy	128 g/kg WG (BAS 516 04 F)	spraying	3	7 - 14	0.007	1500	0.102	7

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Pear	Italy	40 g/kg WG (BAS 584 00 F)	spraying	1 - 3	8 - 14	0.007	1500	0.1	35
Pear	Japan	68 g/kg WG (BAS 516 05 F)	spraying	3	---	0.012	2000 - 7000	0.068 - 0.238	1
Pear	Netherlands	128 g/kg WG (BAS 516 04 F)	spraying	4	7 - 10	---	---	0.102	7
Pear	Poland	128 g/kg WG (BAS 516 04 F)	spraying	2	8 - 14	0.02	500 - 750	0.102	7
Pear	Portugal	128 g/kg WG (BAS 516 04 F)	spraying	3	7 - 14	---	---	0.102	7
Pear	Romania	128 g/kg WG (BAS 516 04 F)	spraying	4	8 - 14	0.02	500 - 1500	0.102	7
Pear	Russian Federation	128 g/kg WG (BAS 516 04 F)	spraying	4	10 - 14	0.01	1000	0.102	10
Pear	Slovenia	128 g/kg WG (BAS 516 04 F)	spraying	3	7 - 12	---	---	0.102	7
Pear	Slovenia	40 g/kg WG (BAS 584 01 F)	spraying	3	10	---	---	0.1	35
Pear	Spain	128 g/kg WG (BAS 516 04 F)	spraying	1 - 3	30	0.01	1000	0.102	7
Pear	United Kingdom	128 g/kg WG (BAS 516 04 F)	spraying	4	10	0.034	300 - 1500	0.102	7
Pear	United Kingdom	40 g/kg WG (BAS 584 01 F)	spraying	4	7 - 10	0.04	250 - 1500	0.1	35
Quince	Bulgaria	128 g/kg WG (BAS 516 04 F)	spraying	3	8 - 12	0.005	2000 - 4000	0.102	7
Quince	Hungary	128 g/kg WG (BAS 516 04 F)	spraying	4	8	0.013	800 - 1000	0.102	7
Quince	Hungary	40 g/kg WG (BAS 584 01 F)	spraying	4	10	0.013	800 - 1200	0.08 - 0.1	35
Japanese persimmon	Greece	200 g/kg WG (BAS 500 02 F)	spraying	2	15	0.01	1000 - 2000	0.1	100
Japanese persimmon	Italy	200 g/kg WG (BAS 500 02 F)	spraying	2	15	0.007	1500	0.1	100 2
Japanese persimmon	Japan	68 g/kg WG (BAS 516 05 F)	spraying	2	---	0.003	2000 - 7000	0.045 – 0.238	1
Japanese persimmon	South Africa	128 g/kg WG (BAS 516 04 F)	spraying	3	---	0.008	thorough coverage	---	145
Japanese persimmon	Spain	250 g/L EC (BAS 500 13 F)	spraying	2	15	0.01	1000 - 2000	0.1	100
Japanese persimmon	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	4	10 - 14	0.014	900 - 1500	0.075 – 0.125	15
Japanese persimmon	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.173 – 0.215	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.457	min 47		
			ground spraying			---	thorough coverage		
			aerial spraying			0.178	min 93.5		

Table 22 Registered uses of pyraclostrobin in table olives

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Table olives	Australia	50 g/kg WG (BAS 518 01 F)	spraying	2	21	0.01	thorough coverage	---	(21) [a]
Table olives	Chile	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	2	10 - 14	---	---	0.125	[b]
Table olives	France	200 g/kg WG (BAS 500 02 F)	spraying	1 - 2	21	---	---	0.1	F [c]
Table olives	Greece	200 g/kg WG (BAS 500 02 F)	spraying	2	21	0.01	1000 - 1500	0.1	[d]
Table olives	Italy	200 g/kg WG (BAS 500 02 F)	spraying	1 - 2	21	0.007	1500	0.1	100 [e]

[a] preferably 1st application prior to flowering and 2nd application just after fruit set

[b] latest application end of flowering

[c] latest application at BBCH 71 (10% of fruit size achieved) based on the concluded evaluation, label is expected to be available in Q2 2018

[d] latest application to be done until 10% of the fruit size is reached (which is BBCH 71), accordingly the PHI is fixed by the latest application

[e] apply to olive trees during the period from the appearance of new leaves up to the stage of fruit enlargement

Table 23 Registered uses of pyraclostrobin in litchi

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Litchi	Australia	200 g/kg WG (BAS 500 02 F)	ground spraying	1 - 3	10 - 14	0.01	max 2000	max 0.2	3
Litchi	Australia	250 g/L EC (BAS 500 13 F)	ground spraying	1 - 3	10 - 14	0.01	max 2000	max 0.2	3
Litchi	China	50 g/kg WG (BAS 518 01 F)	spraying	4	---	0.003 - 0.005	---	---	14
Litchi	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	---	7	0.008	---	0.05 – 0.1	12

Table 24 Registered uses of pyraclostrobin in assorted tropical and sub-tropical fruits – inedible peel – large (subgroup 006B)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Avocado	Mexico	250 g/L EC (BAS 500 13 F)	spraying	1 - 2	14	0.094	200 - 500	0.125 - 0.188	15
Avocado	Peru	128 g/kg WG (BAS 516 04 F)	spraying	2	7 - 10	---	---	0.102 - 0.128	n.a.
Avocado	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	2	7	---	max 127,000	0.166	0
			ground spraying			---	thorough coverage		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
			aerial spraying			0.353	min 47		
Banana	Australia	250 g/L EC (BAS 500 13 F)	aerial spraying	4	---	---	min 20	0.075 - 0.1	not required when used as directed
			ground spraying			---	ensure even coverage		
Banana	Belize	250 g/L EC (BAS 500 00 F BAS 500 13 F)	spraying	3	12 - 14	---	14	0.1	0
Banana	Brazil	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	5	14 - 21	---	15 - 20	0.1	3
Banana	Brazil	133 g/L SE (BAS 512 00 F BAS 512 19 F)	spraying	5	14 - 21	---	15 - 20	0.067	3
Banana	Colombia	250 g/L EC (BAS 500 00 F BAS 500 13 F)	spraying	4	---	---	---	0.1	0
Banana	Colombia	100 g/L EC BAS 528 00 F	spraying	3	11 - 16	---	---	0.1	0
Banana	Costa Rica	250 g/L EC (BAS 500 00 F BAS 500 13 F)	spraying	3	12 - 14	---	14	0.1	0
Banana	Dominican Republic	250 g/L EC (BAS 500 00 F BAS 500 13 F)	spraying	3	12 - 14	---	14	0.1	0
Banana	Dominican Republic	333 g/L SC (BAS 703 02 F)	ground spraying	1 - 3	7	0.033	min 400	0.1 – 0.133	5
Banana	Dominican Republic	50 g/kg WG (BAS 518 01 F)	aerial spraying	10	5 - 7	---	18 - 23	0.013 - 0.05	0
			ground spraying			---	45 - 65		
Banana	Dominican Republic	100 g/L EC (BAS 528 00 F)	ground spraying	3	10 - 16	---	45 - 65	0.08 - 0.12	0
			aerial spraying			---	18 - 23		
Banana	Ecuador	250 g/L EC (BAS 500 00 F BAS 500 13 F)	spraying	4	15 - 21	---	---	0.1	0
Banana	Ecuador	100 g/L EC (BAS 528 00 F)	spraying	3	12 - 15	0.833	12 - 14	0.1	0
Banana	El Salvador	250 g/L EC (BAS 500 00 F BAS 500 13 F)	spraying	3	12 - 14	---	14	0.1	0
Banana	Guatemala	100 g/L EC (BAS 528 00 F)	ground spraying	3	10 - 16	---	45 - 65	0.08 - 0.12	0
			aerial spraying			---	18 - 23		
Banana	Guatemala	250 g/L EC (BAS 500 00 F BAS 500 13 F)	spraying	3	12 - 14	---	14	0.1	0
Banana	Guatemala	50 g/kg WG (BAS 518 01 F)	aerial spraying	10	5 - 7	---	18 - 23	0.013 - 0.05	0

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Banana	Honduras	250 g/L EC (BAS 500 00 F BAS 500 13 F)	spraying	3	12 - 14	---	14	0.1	0
Banana	Honduras	50 g/kg WG (BAS 518 01 F)	aerial spraying	10	5 - 7	---	18 - 23	0.013 - 0.05	0
			ground spraying			---	45 - 65		
Banana	Malaysia	250 g/L EC (BAS 500 13 F)	spraying	3	14	0.01	1000	0.1	1
Banana	Mexico	250 g/L EC (BAS 500 13 F)	spraying	4	14	---	---	0.1	1
Banana	Nicaragua	250 g/L EC (BAS 500 00 F BAS 500 13 F)	spraying	4	12 - 14	---	14	0.1	0
Banana	Panama	250 g/L EC (BAS 500 00 F BAS 500 13 F)	spraying	3	12 - 14	---	14	0.1	0
Banana	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	3	14	---	---	0.075	3
Canistel	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	2	7	---	max 127,000	0.166	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.353	min 47		
Mango	Australia	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 2	---	0.01 – 0.015	thorough coverage	---	14
Mango	Brazil	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	2	15	0.015	1000 - 1500	0.1 - 0.15	7
Mango	Brazil	333 g/L SC (BAS 703 02 F)	ground spraying	4	7 - 14	0.027	500 - 1000	0.042 - 0.133	7
			aerial spraying			0.667	20 - 30		
Mango	Mexico	128 g/kg WG (BAS 516 04 F)	spraying	1 - 2	7	---	---	0.1 - 0.15	0
Mango	Peru	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	1 - 2	---	0.012	850	0.1	30
Mango	Peru	128 g/kg WG (BAS 516 04 F)	spraying	2	7 - 10	0.01	1066	0.1	7
Mango	Taiwan Province of China	250 g/L EC (BAS 500 01 F)	spraying	4	7 - 14	0.005	1000 - 1200	0.04 – 0.05	12
Mango	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	2	7	---	max 127,000	0.166	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.353	min 47		
Papaya	Brazil	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	4	10 - 14	0.01	1000 - 1500	0.05 - 0.1	7

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Papaya	Brazil	333 g/L SC (BAS 703 02 F)	ground spraying	4	7 - 14	0.027	500 - 1000	0.042 - 0.133	7
			aerial spraying			0.667	20 - 30		
Papaya	Guatemala	333 g/L SC (BAS 703 02 F)	spraying	1	---	0.047	min 285	0.099 - 0.133	7
Papaya	Mexico	128 g/kg WG (BAS 516 04 F)	spraying	1 - 3	7	---	good coverage	0.1 - 0.15	0
Papaya	Mexico	250 g/L SC (BAS 703 01 F)	spraying	1 - 2	14	0.017	500 - 600	0.064 – 0.085	7
Papaya	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.043	200 - 1050	0.086	7
Papaya	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	2	7	---	max 127,000	0.166	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.353	min 47		
American persimmon	Greece	200 g/kg WG (BAS 500 02 F)	spraying	2	15	0.01	1000 - 2000	0.1	100
American persimmon	Italy	200 g/kg WG (BAS 500 02 F)	spraying	2	15	0.007	1500	0.1	100
American persimmon	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.173 – 0.215	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.457	min 47		
Black sapote	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	2	7	---	max 127,000	0.166	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.353	min 47		
Star apple	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	2	7	---	max 127,000	0.166	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.353	min 47		

Table 25 Registered uses of pyraclostrobin in assorted tropical and sub-tropical fruits - inedible rough or hairy peel – large (subgroup 006C)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Custard apple	Australia	200 g/kg WG (BAS 500 02 F)	spraying	3	7	0.016	thorough coverage	---	3
Durian	Vietnam	50 g/kg WG (BAS 518 01 F)	spraying	2	---	0.019	400 - 500	0.06 - 0.075	5 - 7

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Pineapple	Brazil	50 g/kg WG (BAS 518 01 F)	spraying	4	8 - 10	0.075	200 - 300	0.125 - 0.15	3
Sapodilla	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	2	7	---	max 127,000	0.166	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.353	min 47		

Table 26 Registered uses of pyraclostrobin in passion fruit

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Passion fruit	Australia	200 g/kg WG (BAS 500 02 F)	spraying	3	---	0.01	good coverage	---	1
Passion fruit	Australia	250 g/L EC (BAS 500 13 F)	spraying	3	---	0.01	good coverage	---	1
Passion fruit	Brazil	50 g/kg WG (BAS 518 01 F)	spraying	4	10	0.015	1000	0.125 - 0.15	7
Passion fruit	Brazil	333 g/L SC (BAS 703 02 F)	spraying	4	7 - 14	0.027	500 - 1000	0.042 - 0.133	7
Passion fruit	Peru	50 g/kg WG (BAS 518 01 F)	spraying	1 - 2	14	---	---	0.1 - 0.125	0

Table 27 Registered uses of pyraclostrobin in spinach and witloof (leafy vegetables)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Spinach (leaves)	Austria	67 g/kg WG (BAS 516 07 F)	spraying	2	8 - 12	0.02	500 - 1000	0.101	14
Spinach (leaves)	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	2	---	---	---	0.101	14
Spinach (leaves)	Bulgaria	67 g/kg WG (BAS 516 07 F)	spraying	2	7 - 10	0.025	400 - 1000	0.05 - 0.101	14
Spinach (leaves)	Germany	67 g/kg WG (BAS 516 07 F)	spraying	2	8 - 12	0.017	600	0.101	14
Spinach (leaves)	Greece	67 g/kg WG (BAS 516 07 F)	spraying	2	7 - 10	0.042	400 - 1000	0.05 - 0.168	14
Spinach (leaves)	Italy	67 g/kg WG (BAS 516 07 F)	spraying	2	7 - 10	0.01	1000	0.101	14
Spinach (leaves)	Italy	40 g/L EC (BAS 536 01 F)	spraying	3	7 - 10	0.01	1000	0.08 - 0.1	14

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Spinach (leaves)	Netherlands	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14	---	---	0.1	14
Spinach (leaves)	Slovakia	67 g/kg WG (BAS 516 07 F)	spraying	2	8 - 10	0.017	600	0.101	14
Spinach (leaves)	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	2	8 - 12	0.05	200 - 600	0.101	14
Spinach (leaves)	Spain	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 10	0.017	400 - 1000	0.067	14
Spinach (leaves)	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	3	7	0.025	300 - 900	0.025 - 0.075	9
Spinach (leaves)	Taiwan Province of China	67 g/kg WG (BAS 536 02 F)	spraying	3	7	0.003	300 - 1050	0.013 - 0.047	9
Spinach (leaves)	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.112 - 0.224	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.477	min 47		
Spinach (leaves)	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	2	7	---	max 127,000	0.224	14
			ground spraying			---	thorough coverage		
			aerial spraying			0.477	min 47		
Spinach (leaves)	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.07 - 0.193	1
			ground spraying			---	thorough coverage		
			aerial spraying			1.029	min 18.7		
Production of “witloof” or “Belgian endive”: As a prerequisite for chicory sprout production, chicory roots have to be produced, which is typically done in open fields. Before storage of the harvested roots for at least 1 week at low temperatures (vernalisation), fungicides are applied to the roots by dipping (or spraying) procedures. After storage, the roots are packed into “forcing trays” and located in darkened climate chambers. Here the roots are “forced” to grow sprouts of pale and tightly folded leaves (within 3 to 4 weeks). Before the development of the sprouts is starting, fungicides are applied by spray application.									
Witloof chicory (sprouts)	France	67 g/kg WG (BAS 516 07 F)	spraying	1	---	---	5 L/m2 *	0.42 g/m2 *	21
Witloof chicory (sprouts)	USA	128 g/kg WG (BAS 516 04 F)	1 spray to the roots on a conveyor belt when transported into storage facility			3.0 - 6.1 g in 11.4 - 13.2 L water per 450 kg roots			19
			1 spray to the roots on forcing trays prior to forcing			3.4 - 6.8 g in 3 L water per 70m² forcing tray (corresponding to 450 kg roots)			
* roots are treated after their transfer to forcing trays (therefore the application rate is given per m^2)									

Table 28 Registered uses of pyraclostrobin in succulent/immature beans with pods (subgroup 014A)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Beans with pods	Bulgaria	200 g/L EC (BAS 500 06 F)	spraying	1	---	0.05	200 - 400	0.1	28
Beans with pods	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1	7
			ground spraying			0.05	min 200		
			aerial spraying			0.2	min 50		
Beans with pods	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7
			aerial spraying			0.2	min 50		
Beans with pods	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	7
			aerial spraying			0.3	min 50		
Beans with pods	France	67 g/kg WG (BAS 516 07 F)	spraying	1 – 2	10 - 14	---	---	0.102	7
Beans with pods	Mexico	250 g/L SC (BAS 703 01 F)	spraying	2	9	0.02	500 – 600	0.075 - 0.1	21
Beans with pods	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.031	430 - 530	0.1 - 0.133	15
Beans with pods	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	21 - 28	0.034	200 - 300	0.067	21
Beans with pods	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	2	7	0.052	240 - 1500	0.02 - 0.125	7
Beans with pods	Taiwan Province of China	250 g/L SC (BAS 703 01 F)	spraying	2	7	0.016	480 - 720	0.05 - 0.075	7
Beans with pods	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Beans with pods	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Beans with pods	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Beans with pods	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 3	---	---	max 127,000	0.1 - 0.161	7

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
			ground spraying			---	thorough coverage		
			aerial spraying			0.847	min 19		
Phaseolus spp.	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1	7
			ground spraying			0.05	min 200		
			aerial spraying			0.2	min 50		
Phaseolus spp.	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7
			aerial spraying			0.2	min 50		
Phaseolus spp.	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	7
			aerial spraying			0.3	min 50		
Phaseolus spp.	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.031	430 - 530	0.1 - 0.133	15
Phaseolus spp.	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Phaseolus spp.	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Phaseolus spp.	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Phaseolus spp.	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 3	---	---	max 127,000	0.1 - 0.161	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.847	min 19		
Vigna spp.	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1	7
			ground spraying			0.05	min 200		
			aerial spraying			0.2	min 50		
Vigna spp.	Canada	250 g/L SC (BAS 703 01 F	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 703 06 F)	aerial spraying			0.2	min 50		
Vigna spp.	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	7
			aerial spraying			0.3	min 50		
Vigna spp.	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Vigna spp.	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Vigna spp.	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Vigna spp.	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 3	---	---	max 127,000	0.1 - 0.161	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.847	min 19		
Broad beans	Denmark	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	200 - 400	0.034	0.067	14
Common beans	Costa Rica	128 g/kg WG (BAS 516 04 F)	spraying	1 - 2	7	---	---	0.064 – 0.077	14
Common beans	Dominican Republic	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	15	0.025	400	0.067 – 0.1	21
Common beans	Guatemala	128 g/kg WG (BAS 516 04 F)	spraying	2	7	---	---	0.102	7
Jack, sword and soya beans	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1	7
			ground spraying			0.05	min 200		
			aerial spraying			0.2	min 50		
Jack, sword and soya beans	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 – 0.1	7
			aerial spraying			0.2	min 50		
Jack, sword and soya beans	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 – 0.15	7
			aerial spraying			0.3	min 50		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Jack, sword and soya beans	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Jack, sword and soya beans	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Jack, sword and soya beans	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Jack, sword and soya beans	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 3	---	---	max 127,000	0.1 – 0.161	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.847	min 19		

Table 29 Registered uses of pyraclostrobin in succulent/immature peas with pods (subgroup 014B)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Peas with pods	Bulgaria	200 g/L EC (BAS 500 06 F)	spraying	1	---	0.05	200 - 400	0.1	28
Peas with pods	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1	7
			ground spraying			0.05	min 200		
			aerial spraying			0.2	min 50		
Peas with pods	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7
			aerial spraying			0.2	min 50		
Peas with pods	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	7
			aerial spraying			0.3	min 50		
Peas with pods	Finland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	0.034	200 - 400	0.067	14
Peas with pods	Guatemala	128 g/kg WG (BAS 516 04 F)	spraying	2	7	---	---	0.1024	7

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Peas with pods	Ireland	67 g/kg WG (BAS 516 07 F)	spraying	1	---	0.034	200 - 400	0.067	14
Peas with pods	Latvia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14	0.034	200 - 400	0.067	14
Peas with pods	Lithuania	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10 - 14	0.034	200 - 400	0.067	21
Peas with pods	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.031	430 - 530	0.1 - 0.133	15
Peas with pods	Poland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14	0.034	200 - 400	0.067	21
Peas with pods	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	1 – 2	14 - 28	0.034	200 - 400	0.067	21
Peas with pods	Spain	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10	0.025	400 - 1000	0.067 - 0.1	7
Peas with pods	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	2	7	0.052	240 - 1500	0.02 - 0.125	7
Peas with pods	Taiwan Province of China	250 g/L SC (BAS 703 01 F)	spraying	2	7	0.016	480 - 720	0.05 - 0.075	7
Peas with pods	United Kingdom	67 g/kg WG (BAS 516 07 F)	spraying	1	---	0.034	200 - 400	0.067	14
Peas with pods	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Peas with pods	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Peas with pods	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Chick-peas	Bulgaria	200 g/L EC (BAS 500 06 F)	spraying	1	---	0.05	200 - 400	0.1	28
Chick-peas	Spain	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10	0.025	400 - 1000	0.067 - 0.1	7
Podded peas	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1	7
			ground spraying			0.05	min 200		
			aerial spraying			0.2	min 50		
Podded peas	Canada	250 g/L SC (BAS 703 01 F	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 703 06 F)	aerial spraying			0.2	min 50		
Podded peas	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	7
			aerial spraying			0.3	min 50		
Podded peas	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Podded peas	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Podded peas	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Pigeon peas	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1	7
			ground spraying			0.05	min 200		
			aerial spraying			0.2	min 50		
Pigeon peas	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7
			aerial spraying			0.2	min 50		
Pigeon peas	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	7
			aerial spraying			0.3	min 50		
Pigeon peas	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Pigeon peas	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Pigeon peas	USA	333 g/L SC (BAS 703 02 F	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 703 05 F BAS 703 09 F)	ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		

Table 30 Registered uses of pyraclostrobin in succulent/immature beans without pods (subgroup 014C)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Beans without pods	Bulgaria	200 g/L EC (BAS 500 06 F)	spraying	1	---	0.05	200 - 400	0.1	28
Beans without pods	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1 - 0.15	7
			ground spraying			0.075	min 200		
			aerial spraying			0.3	min 50		
Beans without pods	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7
			aerial spraying			0.2	min 50		
Beans without pods	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	7
			aerial spraying			0.3	min 50		
Beans without pods	Mexico	250 g/L SC (BAS 703 01 F)	spraying	2	9	0.02	500 – 600	0.075 – 0.1	21
Beans without pods	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.031	430 - 530	0.1 – 0.133	15
Beans without pods	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	21 - 28	0.034	200 - 300	0.067	21
Beans without pods	Spain	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10	0.025	400 - 1000	0.067 - 0.101	10
Beans without pods	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	2	7	0.052	240 - 1500	0.02 – 0.125	7
Beans without pods	Taiwan Province of China	250 g/L SC (BAS 703 01 F)	spraying	2	7	0.016	480 – 720	0.05 – 0.075	7
Beans without pods	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Beans without pods	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.11 – 0.164	7
			ground spraying			---	thorough coverage		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
			aerial spraying			0.349	min 47		
Beans without pods	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Beans without pods	USA	200 g/L SC (BAS 734 01 F)	sprinkler irrigation	1 - 3	---	---	max 127,000	0.1 – 0.161	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.847	min 19		
Phaseolus spp.	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1 - 0.15	7
			ground spraying			0.075	min 200		
			aerial spraying			0.3	min 50		
Phaseolus spp.	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7
			aerial spraying			0.2	min 50		
Phaseolus spp.	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	7
			aerial spraying			0.3	min 50		
Phaseolus spp.	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Phaseolus spp.	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Phaseolus spp.	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Phaseolus spp.	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 3	---	---	Max. 127,000	0.1 - 0.161	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.847	min 19		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Vigna spp.	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1 - 0.15	7
			ground spraying			0.075	min 200		
			aerial spraying			0.3	min 50		
Vigna spp.	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7
			aerial spraying			0.2	min 50		
Vigna spp.	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	7
			aerial spraying			0.3	min 50		
Vigna spp.	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Vigna spp.	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Vigna spp.	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Vigna spp.	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 3	---	---	max 127,000	0.1 - 0.161	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.847	min 19		
Broad beans	Bulgaria	67 g/kg WG (BAS 516 07 F)	spraying	2	10	0.017	400 - 1000	0.067	28
Broad beans	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1 – 0.15	7
			ground spraying			0.075	min 200		
			aerial spraying			0.3	min 50		
Broad beans	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7
			aerial spraying			0.2	min 50		
Broad beans	USA	250 g/L EC (BAS 500 00 F	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 500 05 F BAS 500 08 F BAS 500 16 F)	ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Broad beans	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Broad beans	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Broad beans	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 3	---	---	max 127,000	0.1 - 0.161	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.847	min 19		

Table 31 Registered uses of pyraclostrobin in succulent/immature peas without pods (subgroup 014D)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Peas without pods	Bulgaria	200 g/L EC (BAS 500 06 F)	spraying	1	---	0.05	200 - 400	0.1	28
Peas without pods	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1 – 0.15	7
			ground spraying			0.075	min 200		
			aerial spraying			0.3	min 50		
Peas without pods	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7
			aerial spraying			0.2	min 50		
Peas without pods	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	7
			aerial spraying			0.3	min 50		
Peas without pods	Finland	67 g/kg WG (BAS 516 07 F)	spraying	2	---	0.034	200 - 400	0.067	14

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Peas without pods	Guatemala	128 g/kg WG (BAS 516 04 F)	spraying	2	7	---	---	0.1024	7
Peas without pods	Ireland	67 g/kg WG (BAS 516 07 F)	spraying	1	---	0.034	200 - 400	0.067	14
Peas without pods	Latvia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14	0.034	200 - 400	0.067	14
Peas without pods	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.031	430 - 530	0.1 – 0.133	15
Peas without pods	Poland	67 g/kg WG (BAS 516 07 F)	spraying	1	---	0.034	200 - 400	0.067	14
Peas without pods	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14 - 28	0.034	200 - 400	0.067	21
Peas without pods	Spain	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10	0.025	400 - 1000	0.067 - 0.1	7
Peas without pods	Sweden	67 g/kg WG (BAS 516 07 F)	spraying	1	---	0.034	200 - 400	0.067	14
Peas without pods	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	2	7	0.052	240 - 1500	0.02 – 0.125	7
Peas without pods	Taiwan Province of China	250 g/L SC (BAS 703 01 F)	spraying	2	7	0.016	480 – 720	0.05 – 0.075	7
Peas without pods	United Kingdom	67 g/kg WG (BAS 516 07 F)	spraying	1	---	0.034	200 - 400	0.067	14
Peas without pods	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Peas without pods	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.11 – 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Peas without pods	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Chick-peas	Bulgaria	200 g/L EC (BAS 500 06 F)	spraying	1	---	0.05	200 - 400	0.1	28
Chick-peas	Spain	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10	0.025	400 - 1000	0.067 - 0.1	7
Garden peas	Canada	250 g/L EC (BAS 500 00 F	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1 – 0.15	7

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 500 05 F)	ground spraying			0.075	min 200		
			aerial spraying			0.3	min 50		
Garden peas	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 – 0.1	7
			aerial spraying			0.2	min 50		
Garden peas	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 – 0.15	7
			aerial spraying			0.3	min 50		
Garden peas	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Garden peas	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.11 – 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Garden peas	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Pigeon peas	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1 - 0.15	7
			ground spraying			0.075	min 200		
			aerial spraying			0.3	min 50		
Pigeon peas	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	7
			aerial spraying			0.2	min 50		
Pigeon peas	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	7
			aerial spraying			0.3	min 50		
Pigeon peas	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	7
			ground spraying			---	thorough coverage		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 500 16 F)	aerial spraying			0.349	min 47		
Pigeon peas	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.11 – 0.164	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Pigeon peas	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		

Table 32 Registered uses of pyraclostrobin in mature (dry) beans (subgroup 015A)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Phaseolus spp.	Brazil	250 g/L EC (BAS 500 01 F BAS 500 14 F)	ground spraying	1 - 3	10 - 14	0.038	200 - 300	0.075	14
			aerial spraying			0.375	20 - 30		
Phaseolus spp	Brazil	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 3	10 - 14	0.038	200 - 300	0.075	14
			aerial spraying			0.375	20 - 30		
Phaseolus spp	Brazil	130 g/L EC (BAS 556 01 F BAS 556 03 F)	ground spraying	1 - 2	15 - 18	0.065	100 - 200	0.065	15
			aerial spraying			0.325	20 - 30		
Phaseolus spp	Brazil	333 g/L SC (BAS 703 02 F)	ground spraying	1 - 4	7 - 14	0.067	150	0.067 - 0.1	14
			aerial spraying			0.499	20 - 30		
Phaseolus spp	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	63,500	0.1 - 0.15	30
			ground spraying			0.075	min 200		
			aerial spraying			0.2	min 50		
Phaseolus spp	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.2	min 100	0.1 - 0.2	30
			aerial spraying			0.4	min 50		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Phaseolus spp	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	aerial spraying	1 - 2	---	0.3	min 50	0.1 - 0.15	30
			ground spraying			0.15	min 100		
Phaseolus spp	France	133 g/L SE (BAS 512 16 F)	spraying	1 - 2	---	---	---	0.1	28
Phaseolus spp	Mexico	250 g/L EC (BAS 500 13 F)	spraying	1 - 3	7	0.063	200 - 500	0.125	21
Phaseolus spp	Mexico	50 g/kg WG (BAS 518 01 F)	spraying	1 - 2	7	0.031	400 - 550	0.1 - 0.125	28
Phaseolus spp	Mexico	250 g/L SC (BAS 703 01 F)	spraying	2	9	0.02	500 – 600	0.075 – 0.1	21
Phaseolus spp	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.031	430 - 530	0.1 – 0.133	15
Phaseolus spp	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	2	7	0.052	240 - 1500	0.02 – 0.125	21
Phaseolus spp	Taiwan Province of China	250 g/L SC (BAS 703 01 F)	spraying	2	7	0.01	500 - 1000	0.025 – 0.05	21
Phaseolus spp	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Phaseolus spp	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Phaseolus spp	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	2	5 - 14	---	max 127,000	0.094 – 0.224	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.5	min 47		
Phaseolus spp	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	21
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Phaseolus spp	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.1 - 0.16	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.842	min 19		
Vigna spp.	Brazil	250 g/L EC (BAS 500 01 F	ground spraying	1 - 3	10 - 14	0.038	200 - 300	0.075	14

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 500 14 F)	aerial spraying			0.375	20 - 30		
Vigna spp.	Brazil	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 3	10 - 14	0.038	200 - 300	0.075	14
			aerial spraying			0.375	20 - 30		
Vigna spp.	Brazil	130 g/L EC (BAS 556 01 F BAS 556 03 F)	ground spraying	1 - 2	15 - 18	0.065	100 - 200	0.065	15
			aerial spraying			0.325	20 - 30		
Vigna spp.	Brazil	333 g/L SC (BAS 703 02 F)	ground spraying	1 - 4	7 - 14	0.067	150	0.067 - 0.1	14
			aerial spraying			0.499	20 - 30		
Vigna spp.	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	63,500	0.1 - 0.15	30
			ground spraying			0.075	min 200		
			aerial spraying			0.2	min 50		
Vigna spp.	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.2	min 100	0.1 - 0.2	30
			aerial spraying			0.4	min 50		
Vigna spp.	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	aerial spraying	1 - 2	---	0.3	min 50	0.1 - 0.15	30
			ground spraying			0.15	min 100		
Vigna spp.	France	133 g/L SE (BAS 512 16 F)	spraying	1 - 2	---	---	---	0.1	28
Vigna spp.	Mexico	250 g/L EC (BAS 500 13 F)	spraying	1 - 3	7	0.063	200 - 500	0.125	21
Vigna spp.	Mexico	50 g/kg WG (BAS 518 01 F)	spraying	1 - 2	7	0.031	400 - 550	0.1 - 0.125	28
Vigna spp.	Mexico	250 g/L SC (BAS 703 01 F)	spraying	2	9	0.02	500 – 600	0.075 – 0.1	21
Vigna spp.	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.031	430 - 530	0.1 – 0.133	15
Vigna spp.	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	2	7	0.052	240 - 1500	0.02 – 0.125	21
Vigna spp.	Taiwan Province of China	250 g/L SC (BAS 703 01 F)	spraying	2	7	0.01	500 - 1000	0.025 – 0.05	21
Vigna spp.	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Vigna spp.	USA	250 g/L SC (BAS 500 17 F	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 500 22 F)	ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Vigna spp.	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	2	5 - 14	---	max 127,000	0.094 – 0.224	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.5	min 47		
Vigna spp.	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	21
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Vigna spp.	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.1 - 0.16	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.842	min 19		
Broad beans	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1 - 0.15	30
			ground spraying			0.075	min 200		
			aerial spraying			0.2	min 50		
Broad beans	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	30
			aerial spraying			0.2	min 50		
Broad beans	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.2	min 100	0.1 - 0.2	30
			aerial spraying			0.4	min 50		
Broad beans	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	aerial spraying	1 - 2	---	0.3	min 50	0.1 - 0.15	30
			ground spraying			0.15	min 100		
Broad beans	France	133 g/L SE (BAS 512 16 F)	spraying	1 - 2	---	---	---	0.1	28
Broad beans	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Broad beans	USA	250 g/L SC (BAS 500 17 F	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 500 22 F)	ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Broad beans	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	21
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Broad beans	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.1 - 0.16	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.842	min 19		
Guar and lablab beans	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63 500	0.1 - 0.15	30
			ground spraying			0.075	min 200		
			aerial spraying			0.2	min 50		
Guar and lablab beans	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Guar and lablab beans	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Guar and lablab beans	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	21
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Guar and lablab beans	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.1 - 0.16	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.842	min 19		
Soya beans	Argentina	133 g/L SE (BAS 512 00 F BAS 512 19 F)	aerial spraying	1	---	0.44	min 15	0.066	15
			ground spraying			0.033	min 200		
Soya beans	Argentina	81 g/L EC (BAS 702 00 F)	aerial spraying	1	---	0.433	min 15	0.065	30

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
			ground spraying			0.043	min 150		
Soya beans	Bolivia	333 g/L SC (BAS 703 02 F)	aerial spraying	2	---	0.5	20 - 30	0.1	14
			ground spraying			---	good coverage		
Soya beans	Bulgaria	200 g/L EC (BAS 500 06 F)	spraying	1	---	0.1	200 - 400	0.1 - 0.2	21
Soya beans	Brazil	250 g/L EC (BAS 500 01 F BAS 500 14 F)	aerial spraying	2	15	0.375	20 - 30	0.075	14
			ground spraying			0.0375	200 - 300		
Soya beans	Brazil	130 g/L EC (BAS 556 01 F BAS 556 03 F)	aerial spraying	2	---	0.39	20 - 30	0.065 – 0.078	14
			ground spraying			0.078	100 - 200		
Soya beans	Brazil	333 g/L SC (BAS 703 02 F)	aerial spraying	4	10 - 20	0.58	20 - 30	0.083 – 0.116	14
			ground spraying			0.116	100 - 200		
Soya beans	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	63,500	0.1 - 0.15	21
			ground spraying			0.075	min 200		
			aerial spraying			0.2	min 50		
Soya beans	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	aerial spraying	1 - 2	---	0.2	min 50	0.075 - 0.1	21
			ground spraying			0.1	min 100		
Soya beans	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	aerial spraying	1 - 2	---	0.3	min 50	0.1 - 0.15	21
			ground spraying			0.15	min 100		
Soya beans	Mexico	250 g/L EC (BAS 500 13 F)	spraying	5	7	0.0375	200 - 500	0.075	21
Soya beans	Mexico	50 g/kg WG (BAS 518 01 F)	spraying	1 - 2	7	0.031	400 - 550	0.1 - 0.125	28
Soya beans	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.031	430 - 530	0.1 – 0.133	15
Soya beans	Russian Federation	200 g/L EC (BAS 500 06 F)	spraying	1	---	0.033	300	0.1	60
Soya beans	Ukraine	63 g/L SE (BAS 512 18 F)	spraying	2	---	0.047	200 - 400	0.047 – 0.094	30
Soya beans	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 – 0.22	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.468	min 47		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Soya beans	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 – 0.22	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.468	min 47		
Soya beans	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	1 - 2	7 - 21	---	max 127,000	0.075 – 0.15	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.319	min 47		
Soya beans	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.073 – 0.1	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Soya beans	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.097 - 0.195	21
			ground spraying			---	min 23,375		
			aerial spraying			1.025	min 19		
Soya beans	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 3	-	---	max 127,000	0.1 - 0.22	21
			ground spraying			---	thorough coverage		
			aerial spraying			1.158	min 19		
Soya beans	Uruguay	250 g/L EC (BAS 500 01 F)	spraying	1	---		n.a.	0.075	15
Soya beans	Uruguay	333 g/L SC (BAS 703 02 F)	ground spraying	1 - 2	---	0.042	min 200	0.083	30
			aerial spraying			0.208	min 40		
Lupins	Poland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	21	0.022 - 0.034	200 - 300	0.067	21
Lupins	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	63,500	0.1 - 0.15	30
			ground spraying			0.075	min 200		
			aerial spraying			0.2	min 50		
Lupins	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.2	min 100	0.1 - 0.2	30
			aerial spraying			0.4	min 50		
Lupins	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	aerial spraying	1 - 2	---	0.3	min 50	0.1 - 0.15	30
			ground spraying			0.15	min 100		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Lupins	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Lupins	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Lupins	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	2	5 - 14	---	max 127,000	0.094 - 0.224	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.5	min 47		
Lupins	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	21
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Lupins	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.1 - 0.16	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.842	min 19		

Table 33 Registered uses of pyraclostrobin in mature (dry) peas (subgroup 015B)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Dry peas	Argentina	133 g/L SE (BAS 512 00 F BAS 512 19 F)	ground spraying	1 - 2	14	0.033	min 200	0.067	39
			aerial spraying			0.443	15		
Dry peas	Bulgaria	200 g/L EC (BAS 500 06 F)	spraying	1	---	0.05	200 - 400	0.1	28
Dry peas	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1 - 0.15	30
			ground spraying			0.075	min 200	0.1 - 0.15	
			aerial spraying			0.2	min 50	max 0.1	
Dry peas	Guatemala	333 g/L SC (BAS 703 02 F)	spraying	3	15	0.025	400	0.067 - 0.1	14

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Dry peas	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.031	430 - 530	0.1 - 0.133	15
Dry peas	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	2	7	0.052	240 - 1500	0.02 - 0.125	7
Dry peas	Taiwan Province of China	250 g/L SC (BAS 703 01 F)	spraying	2	7	0.016	480 – 720	0.05 - 0.075	7
Dry peas	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Dry peas	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Dry peas	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	21
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Pisum spp.	Argentina	133 g/L SE (BAS 512 00 F BAS 512 19 F)	ground spraying	1 - 2	14	0.033	min 200	0.067	39
			aerial spraying			0.443	15		
Pisum spp.	Bulgaria	200 g/L EC (BAS 500 06 F)	spraying	1	---	0.05	200 - 400	0.1	28
Pisum spp.	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1 - 0.15	30
			ground spraying			0.075	min 200	0.1 - 0.15	
			aerial spraying			0.2	min 50	max 0.1	
Pisum spp.	Canada	128 g/kg WG (BAS 516 04 F)	ground spraying	1 - 2	10 - 14	0.1	min 100	0.1	30
			aerial spraying			0.2	min 50		
Pisum spp.	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	30
			aerial spraying			0.2	min 50		
Pisum spp.	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.1 - 0.15	30
			aerial spraying			0.3	min 50		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Pisum spp.	France	133 g/L SE (BAS 512 16 F)	spraying	1	---	---	---	0.1	28
Pisum spp.	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Pisum spp.	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Pisum spp.	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	21
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		
Chick peas	Bulgaria	200 g/L EC (BAS 500 06 F)	spraying	1	---	0.05	200 - 400	0.1	28
Chick peas	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	ground spraying	1 - 2	---	0.075	min 200	0.1 - 0.15	30
			aerial spraying			0.2	min 50	max 0.1	
Chick peas	Canada	128 g/kg WG (BAS 516 04 F)	ground spraying	1 - 2	10 - 14	0.1	min 100	0.1	30
			aerial spraying			0.2	min 50		
Chick peas	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.100	min 100	0.075 - 0.1	30
			aerial spraying			0.200	min 50		
Chick peas	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	aerial spraying	1 - 2	---	0.3	min 50	0.1 - 0.15	30
			ground spraying			0.15	min 100		
Chick peas	Mexico	250 g/L EC (BAS 500 13 F)	spraying	2 - 3	7	0.063	200 - 500	0.125	21
Chick peas	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.031	430 - 530	0.1 - 0.133	15
Chick peas	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Chick peas	USA	250 g/L SC (BAS 500 17 F	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 500 22 F)	ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Chick peas	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	21
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Chick peas	USA	200 g/L EC (BAS 734 01 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.1 - 0.16	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.842	min 19		
Lentils	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	max 0.1	30
			ground spraying			0.05	min 200		
			aerial spraying			0.2	min 50		
Lentils	Canada	128 g/kg WG (BAS 516 04 F)	ground spraying	1 - 2	10 - 14	0.1	min 100	0.1	30
			aerial spraying			0.2	min 50		
Lentils	Canada	250 g/L SC (BAS 703 01 F BAS 703 06 F)	ground spraying	1 - 2	---	0.1	min 100	0.075 - 0.1	30
			aerial spraying			0.2	min 50		
Lentils	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	aerial spraying	1 - 2	---	0.3	min 50	0.1 - 0.15	30
			ground spraying			0.15	min 100		
Lentils	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	14	0.031	430 - 530	0.1 – 0.133	15
Lentils	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Lentils	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Lentils	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	21
			ground spraying			---	thorough coverage		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
			aerial spraying			1.026	min 19		
Pigeon Peas	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.1	30
			ground spraying			0.05	min 200	0.1	
			aerial spraying			0.2	min 50	max 0.1	
Pigeon Peas	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Pigeon Peas	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.11 - 0.164	21
			ground spraying			---	thorough coverage		
			aerial spraying			0.349	min 47		
Pigeon Peas	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 2	7 - 14	---	max 127,000	0.097 - 0.195	21
			ground spraying			---	thorough coverage		
			aerial spraying			1.026	min 19		

Table 34 Registered uses of pyraclostrobin in root vegetables (subgroup 016A)

Crop (commodity)	Country	End-use product [BASF code]	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Chicory (roots)	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14 - 28	---	---	0.101	14
Chicory (roots)	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Chicory (roots)	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Chicory (roots)	USA	333 g/L SC (BAS 703 02 F	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7

Crop (commodity)	Country	End-use product [BASF code]	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 703 05 F BAS 703 09 F)	ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Radish	Austria	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 10	0.025	400 - 600	0.101	7
				1	---				
Radish	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 21	---	---	0.101	7
				1	---				14
Radish	Czech Republic	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	0.017	600	0.101	7
Radish	Germany	67 g/kg WG (BAS 516 07 F)	spraying	2	7 - 10	0.025	400 - 600	0.101	14
				1	---				7
Radish	Hungary	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7	0.025	400 - 600	0.101	7
Radish	Netherlands	67 g/kg WG (BAS 516 07 F)	spraying	1	---	---	---	0.101	14
Radish	Poland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14 - 21	0.017	600 - 800	0.101	7
				1	---				
Radish	Slovakia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 12	0.017	600	0.101	7
Radish	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 10	0.025	400 - 600	0.101	7
Radish	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Radish	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Radish	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Swede (rutabaga)	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Swede (rutabaga)	USA	250 g/L SC (BAS 703 01 F	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7

Crop (commodity)	Country	End-use product [BASF code]	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 703 06 F)	ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Swede (rutabaga)	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Salsify	Austria	67 g/kg WG (BAS 516 07 F)	spraying	2	7 - 14	0.017	400 - 600	0.05 - 0.067	14
Salsify	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	21 - 28	---	---	0.05	14
Salsify	Croatia	67 g/kg WG (BAS 516 07 F)	spraying	2	---	---	---	0.027	14
Salsify	Czech Republic	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	0.017	400 - 600	0.067	14
Salsify	Denmark	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	---	---	0.05 – 0.067	14
Salsify	France	67 g/kg WG (BAS 516 07 F)	spraying	1 - 3	---	---	---	0.027	14
Salsify	Germany	67 g/kg WG (BAS 516 07 F)	spraying	2	10 - 14	0.017	400 - 600	0.05 - 0.067	14
Salsify	Netherlands	67 g/kg WG (BAS 516 07 F)	spraying	1 - 3	21	----	---	0.05	28
Salsify	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10 - 14	0.017	400 - 600	0.05 – 0.067	14
Salsify	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Salsify	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Salsify	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Beetroot (garden beet)	Austria	67 g/kg WG (BAS 516 07 F)	spraying	2	10 - 14	0.017	400 - 600	0.067	14
Beetroot (garden beet)	Germany	67 g/kg WG (BAS 516 07 F)	spraying	2	10 - 14	0.017	400 - 600	0.067	14

Crop (commodity)	Country	End-use product [BASF code]	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Beetroot (garden beet)	Italy	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 10	0.01	max 1000	0.101	14
Beetroot (garden beet)	Poland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10 - 14	0.011	600 - 800	0.067	14
Beetroot (garden beet)	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Beetroot (garden beet)	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Beetroot (garden beet)	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Edible burdock	Taiwan Province of China	250 g/L SC (BAS 703 01 F)	spraying	---	7	0.008	1000 - 1500	0.05 – 0.075	7
Edible burdock	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Edible burdock	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Edible burdock	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Carrots	Austria	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.017	400 - 600	0.05 - 0.067	14
Carrots	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	2	7 - 28	---	---	0.05	14
Carrots	Brazil	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	1 - 3	10 - 14	0.02	500 - 800	0.1	7

Crop (commodity)	Country	End-use product [BASF code]	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Carrots	Brazil	50 g/kg WG (BAS 518 01 F)	spraying	1 - 3	10 - 14	0.02	500 - 800	0.1	7
Carrots	Brazil	333 g/L SC (BAS 703 02 F)	spraying	1 - 4	7 - 14	0.029	400 - 700	0.083 - 0.117	7
Carrots	Bulgaria	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10 - 14	0.005	800	0.04	14
Carrots	Dominican Republic	128 g/kg WG (BAS 516 04 F)	spraying	4 - 6	7	---	---	0.102	0
Carrots	Dominican Republic	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 3	8 - 15	0.038	min 400	0.1 - 0.15	7
Carrots	Dominican Republic	333 g/L SC (BAS 703 02 F)	spraying	1 - 3	7	0.029	min 400	0.083 - 0.117	7
Carrots	Finland	67 g/kg WG (BAS 516 07 F)	spraying	2	14	0.025	200 - 400	0.05	14
Carrots	France	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	---	---	0.027 - 0.067	14
Carrots	Germany	67 g/kg WG (BAS 516 07 F)	spraying	2	7 - 12	0.017	400 - 600	0.05 - 0.067	14
Carrots	Greece	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10 - 14	0.008	800	0.05 – 0.067	14
Carrots	Guatemala	128 g/kg WG (BAS 516 04 F)	spraying	4 - 6	7	---	---	0.102	0
Carrots	Guatemala	50 g/kg WG (BAS 518 01 F)	spraying	1 - 3	8 - 15	0.038	min 400	0.1 - 0.15	7
Carrots	Guatemala	333 g/L SC (BAS 703 02 F)	spraying	1 - 3	7	0.029	min 400	0.083 - 0.117	7
Carrots	Honduras	50 g/kg WG (BAS 518 01 F)	spraying	1 - 3	8 - 15	0.038	min 400	0.1 - 0.15	7
Carrots	Honduras	333 g/L SC (BAS 703 02 F)	spraying	1 - 3	7	0.029	min 400	0.083 - 0.117	7
Carrots	Hungary	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7	0.022	300 - 600	0.05 - 0.067	14
Carrots	Ireland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.025	200 - 900	0.05 - 0.067	14
Carrots	Italy	67 g/kg WG (BAS 516 07 F)	spraying	2	7	0.007	max 1000	0.067	14
Carrots	Japan	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	0.003	1000 - 3000	0.034 - 0.101	14
Carrots	Latvia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14	0.025	200 - 400	0.05	14
Carrots	Lithuania	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10 - 14	0.034	200 - 400	0.05 - 0.067	14
Carrots	Netherlands	67 g/kg WG (BAS 516 07 F)	spraying	1 - 3	21 - 28	---	---	0.05	28
Carrots	Poland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7	0.011	600 - 800	0.05 - 0.067	28
Carrots	Portugal	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 10	0.005	1000	0.05	14
Carrots	Russia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 12	0.017	400 - 600	0.05 - 0.067	14

Crop (commodity)	Country	End-use product [BASF code]	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Carrots	Slovakia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.017	400 - 600	0.05 - 0.067	14
Carrots	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.034	200 - 600	0.067	14
Carrots	Spain	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 10	0.017	400 - 1000	0.067	14
Carrots	Sweden	67 g/kg WG (BAS 516 07 F)	spraying	2	10 - 14	0.034	200 - 400	0.067	14
Carrots	Ukraine	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.034	250 - 1000	0.05 - 0.084	30
Carrots	United Kingdom	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.034	200 - 900	0 05 - 0.067	14
Carrots	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	1 - 6	7 - 14	---	max 127,000	0.075 - 0.098	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.209	min 47		
Carrots	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Carrots	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Carrots	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Celeriac	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14	---	---	0.101	14
Celeriac	Germany	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10 - 12	0.025	400 - 600	0.101	14
Celeriac	Hungary	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7	0.022	300 - 600	0.05 - 0.067	14
Celeriac	Poland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10 - 14	0.017	600 - 800	0.101	14
Celeriac	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		

Crop (commodity)	Country	End-use product [BASF code]	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Celeriac	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Celeriac	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Turnip-rooted chervil	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Turnip-rooted chervil	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Turnip-rooted chervil	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Horseradish	Austria	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.013	400 - 600	0.05	14
Horseradish	Denmark	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	---	---	0.05 - 0.067	14
Horseradish	Germany	67 g/kg WG (BAS 516 07 F)	spraying	2	---	0.013	400 - 600	0.05	14
Horseradish	Hungary	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.022	300 - 600	0.05 - 0.067	14
Horseradish	Netherlands	67 g/kg WG (BAS 516 07 F)	spraying	1 - 3	21	---	---	0.05	28
Horseradish	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	0.013	400 - 600	0.05	21
Horseradish	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Horseradish	USA	250 g/L SC (BAS 703 01 F	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7

Crop (commodity)	Country	End-use product [BASF code]	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 703 06 F)	ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Horseradish	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Turnip-rooted parsley	Austria	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.017	400 - 600	0.05 - 0.067	14
Turnip-rooted parsley	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 28	---	---	0.05	14
Turnip-rooted parsley	Czech Republic	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	0.017	400 - 600	0.067	14
Turnip-rooted parsley	Germany	67 g/kg WG (BAS 516 07 F)	spraying	2	10 - 14	0.017	400 - 600	0.05 - 0.067	14
Turnip-rooted parsley	Hungary	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7	0.022	300 - 600	0.05 - 0.067	14
Turnip-rooted parsley	Netherlands	67 g/kg WG (BAS 516 07 F)	spraying	1 - 3	21	----	---	0.05	28
Turnip-rooted parsley	Poland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	21 - 28	0.008	600 - 800	0.05	14
Turnip-rooted parsley	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	10 - 14	0.017	400 - 600	0.067	14
Turnip-rooted parsley	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Turnip-rooted parsley	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Turnip-rooted parsley	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Parsnip	Austria	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.013	400 - 600	0.05	14
Parsnip	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	21 - 28	---	---	0.05	21
Parsnip	Germany	67 g/kg WG (BAS 516 07 F)	spraying	2	---	0.013	400 - 600	0.05	14

Crop (commodity)	Country	End-use product [BASF code]	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Parsnip	Hungary	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7	0.022	300 - 600	0.05 - 0.067	14
Parsnip	Netherlands	67 g/kg WG (BAS 516 07 F)	spraying	1 - 3	21	----	---	0.05	28
Parsnip	Poland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	21 - 28	0.008	600 - 800	0.05	14
Parsnip	Slovakia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	0.013	400 - 600	0.05	14
Parsnip	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	---	0.013	400 - 600	0.05	21
Parsnip	Sweden	67 g/kg WG (BAS 516 07 F)	spraying	2	10 - 14	0.034	200 - 400	0.067	14
Parsnip	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Parsnip	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Parsnip	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Black-radish	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 21	---	---	0.101	7
				1	---				14
Japanese radish	Based on EU crop grouping rules, Japanese radish is registered in Austria, Belgium, Czech Republic, Germany, Hungary, The Netherlands, Poland, Slovakia and Slovenia (for GAP information please see radish).								
Spanish salsify	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Spanish salsify	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Spanish salsify	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		

Crop (commodity)	Country	End-use product [BASF code]	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
			aerial spraying			1.053	min 19		
Scorzonera	France	67 g/kg WG (BAS 516 07 F)	spraying	1 - 3	---	---	---	0.027	14
Skirret	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	3	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Skirret	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.073 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.526	min 19		
Skirret	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.15 - 0.2	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.053	min 19		
Sugar beets	Austria	133 g/L SE (BAS 512 16 F)	spraying	1 - 2	---	0.067	200 - 400	0.133	28
Sugar beets	Belarus	63 g/L SE (BAS 512 18 F)	spraying	1 - 2	14 - 21	0.036	300	0.078 - 0.109	50
Sugar beets	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	sprinkler irrigation	1 - 2	---	---	max 63,500	0.168 - 0.225	7
			ground spraying			0.113	min 200		
			aerial spraying			0.45	min 50		
Sugar beets	Canada	333 g/L SC (BAS 703 02 F BAS 703 05 F)	ground spraying	1 - 2	---	0.15	min 100	0.15	7
			aerial spraying			0.3	min 50		
Sugar beets	Germany	133 g/L SE (BAS 512 16 F)	spraying	1 - 2	---	0.067	200 - 400	0.133	28
Sugar beets	Netherlands	133 g/L SE (BAS 512 16 F)	spraying	1	---	---	---	0.067 - 0.133	28
Sugar beets	Russia	63 g/L SE (BAS 512 18 F)	spraying	1 - 2	14 - 21	0.036	300	0.078 - 0.109	50
Sugar beets	Ukraine	63 g/L SE (BAS 512 18 F)	spraying	1 - 2	---	0.047	200 - 400	0.078 - 0.094	30
Sugar beets	United Kingdom	133 g/L SE (BAS 512 16 F)	spraying	1 - 2	---	0.067	200 - 400	0.133	28
Sugar beets	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F	sprinkler irrigation	3	14	---	max 127,000	0.164 - 0.219	7
			ground spraying			---	thorough coverage		

Crop (commodity)	Country	End-use product [BASF code]	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 500 16 F)	aerial spraying			0.466	min 47		
Sugar beets	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 4	14	---	max 127,000	0.164 - 0.219	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.466	min 47		
Sugar beets	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	14	---	max 127,000	0.146 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.025	min 19		

Table 35 Registered uses of pyraclostrobin in tuberous and corm vegetables (subgroup 016B)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Chayote root	Brazil	333 g/L SC (BAS 703 02 F)	spraying	4	7 - 14	0.007 - 0.012	400 - 1000	---	7
Chayote root	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	6	7 - 14	---	max 127,000	0.109 - 0.219	3
			ground spraying			---	thorough coverage		
			aerial spraying			0.466	min 47		
Chayote root	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 6	7 - 14	---	max 127,000	0.109 - 0.219	3
			ground spraying			---	thorough coverage		
			aerial spraying			0.466	min 47		
Chayote root	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.055 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.213	min 47		
Chayote root	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.025	min 19		
Cassava	Brazil	133 g/L SE (BAS 512 00 F	ground spraying	1 - 2	15	0.044	300	0.08 - 0.133	30

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
		BAS 512 19 F)	aerial spraying			0.665	20 - 30		
Cassava	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	6	7 - 14	---	max 127,000	0.109 - 0.219	3
			ground spraying			---	thorough coverage		
			aerial spraying			0.466	min 47		
Cassava	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	1 - 6	7 - 14	---	max 127,000	0.109 - 0.219	3
			ground spraying			---	thorough coverage		
			aerial spraying			0.466	min 47		
Cassava	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.055 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.213	min 47		
Cassava	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.025	min 19		
Tannia (tanier), taro (dasheen), sweet potato, arracacha, arrow-root, edible canna, tiger nut (chufa), Chinese artichoke, Jerusalem artichoke, Guinea arrow-root (leren), yam bean	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	6	7 - 14	---	max 127,000	0.109 - 0.219	3
			ground spraying			---	thorough coverage		
			aerial spraying			0.466	min 47		
Tannia (tanier), taro (dasheen), sweet potato, arracacha, arrow-root, edible canna, tiger nut (chufa), Chinese artichoke, Jerusalem artichoke, Guinea arrow-root (leren), yam bean	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	6	7 - 14	---	max 127,000	0.109 - 0.219	3
			ground spraying			---	thorough coverage		
			aerial spraying			0.466	min 47		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Tannia (tanier), taro (dasheen), sweet potato, arracacha, arrow-root, edible canna, tiger nut (chufa), Chinese artichoke, Jerusalem artichoke, Guinea arrow-root (leren), yam bean	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.055 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.213	min 47		
Tannia (tanier), taro (dasheen), sweet potato, arracacha, arrow-root, edible canna, tiger nut (chufa), Chinese artichoke, Jerusalem artichoke, Guinea arrow-root (leren), yam bean	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.025	min 19		
Potatoes	Argentina	128 g/kg WG (BAS 516 04 F)	spraying	1 - 2	15	---	good coverage	0.032	15
Potatoes	Australia	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 2	7 - 10	0.075	200 - 600	0.05 - 0.15	7
			aerial spraying			0.5	30 - 40		
Potatoes	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	4	10 - 21	---	---	0.013	3
Potatoes	Belgium	40 g/L EC (BAS 536 01 F)	spraying	1 - 3	5 - 10	0.05	min 200	0.1	7
Potatoes	Brazil	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	1 - 5	10 - 14	0.02	500 - 800	0.1	3
Potatoes	Brazil	50 g/kg WG (BAS 518 01 F)	spraying	1 - 6	7 - 14	0.05	500 - 800	0.075 - 0.25	7
Potatoes	Brazil	333 g/L SC (BAS 703 02 F)	spraying	1 - 4	7 - 14	0.029	400 - 500	0.067 - 0.117	3
Potatoes	Canada	250 g/L EC (BAS 500 00 F BAS 500 05 F)	ground spraying	1 - 3	5 - 14	0.084	min 200	0.113 - 0.168	3
			aerial spraying			0.336	min 50		
Potatoes	Canada	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 3	7 - 14	0.084	min 200	0.113 - 0.168	3
			aerial spraying			0.336	min 50		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Potatoes	Chile	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	1 - 3	10 - 15	---	---	0.125	3
Potatoes	Chile	200 g/kg WG (BAS 500 02 F)	spraying	1 - 3	7 - 10	0.045	400 - 500	0.12 - 0.18	3
Potatoes	Dominican Republic	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 3	8 - 15	0.038	min 400	0.1 - 0.15	7
Potatoes	Dominican Republic	128 g/kg WG (BAS 516 04 F)	spraying	4 - 6	7	---	good coverage	0.102	0
Potatoes	Dominican Republic	68 g/kg WG (BAS 516 05 F)	spraying	1 - 3	7	0.019	400 - 800	0.075	3
Potatoes	Dominican Republic	333 g/L SC (BAS 703 02 F)	spraying	1 - 3	7	0.029	min 400	0.083 - 0.117	7
Potatoes	Dominican Republic	67 g/kg WG (BAS 536 02 F)	ground spraying	1 - 4	5 - 10	0.034	min 400	0.101 - 0.134	7
Potatoes	Ecuador	50 g/kg WG (BAS 518 01 F)	spraying	2	---	---	---	0.02	14
Potatoes	El Salvador	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 3	8 - 15	0.038	min 400	0.125 - 0.15	7
Potatoes	El Salvador	67 g/kg WG (BAS 536 02 F)	ground spraying	1 - 4	5 - 10	0.034	min 400	0.101 - 0.134	4
Potatoes	El Salvador	333 g/L SC (BAS 703 02 F)	spraying	1 - 3	7	0.029	min 400	0.083 - 0.117	7
Potatoes	France	40 g/L EC (BAS 536 01 F)	spraying	3	5 - 10	---	---	0.1	7
Potatoes	Germany	67 g/kg WG (BAS 516 07 F)	spraying	1 - 4	10 - 21	0.008	200 - 400	0.017	3
Potatoes	Greece	40 g/L EC (BAS 536 01 F)	spraying	1 - 3	10	0.013	800 - 1000	0.08 – 0.1	3
Potatoes	Guatemala	68 g/kg WG (BAS 516 05 F)	ground spraying	1 - 3	7	0.019	400 - 800	0.075	0
Potatoes	Guatemala	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 3	8 - 15	0.038	min 400	0.1 - 0.15	3
Potatoes	Guatemala	67 g/kg WG (BAS 536 02 F)	ground spraying	1 - 4	5 - 10	0.025	min. 400	0.08 - 0.101	4
Potatoes	Guatemala	333 g/L SC (BAS 703 02 F)	spraying	1 - 3	7	0.029	min 400	0.083 - 0.117	7
Potatoes	Honduras	68 g/kg WG (BAS 516 05 F)	ground spraying	1 - 3	7	0.019	400 - 800	0.075	0
Potatoes	Honduras	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 3	8 - 15	0.038	min 400	0.1 - 0.15	3
Potatoes	Honduras	67 g/kg WG (BAS 536 02 F)	ground spraying	1 - 4	5 - 10	0.025	min 400	0.08 - 0.101	4
Potatoes	Honduras	333 g/L SC (BAS 703 02 F)	spraying	1 - 3	7	0.029	min 400	0.083 - 0.117	7
Potatoes	Italy	40 g/L EC (BAS 536 01 F)	spraying	1 - 3	7 - 10	0.01	1000	0.08 - 0.1	3
Potatoes	Latvia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 4	7 - 14	0.007	250 - 400	0.017	3

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Potatoes	Lithuania	67 g/kg WG (BAS 516 07 F)	spraying	2 - 4	7 - 14	0.005	250 - 1000	0.013	14
Potatoes	Mexico	50 g/kg WG (BAS 518 01 F)	spraying	1 - 2	5 - 7	---	---	0.1 - 0.15	7
Potatoes	Mexico	67 g/kg WG (BAS 536 02 F)	spraying	3	7	0.067	200 - 450	0.101 - 0.134	4
Potatoes	Mexico	333 g/L SC (BAS 703 02 F)	spraying	1 - 2	7	0.025	400 - 500	0.067 - 0.1	7
Potatoes	Nicaragua	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 3	8 - 15	0.038	min 400	0.125 - 0.15	3
Potatoes	Nicaragua	67 g/kg WG (BAS 536 02 F)	ground spraying	1 - 4	5 - 10	0.034	min 400	0.067 - 0.134	4
Potatoes	Panama	50 g/kg WG (BAS 518 01 F)	ground spraying	1 - 3	8 - 15	0.038	min 400	0.1 - 0.15	3
Potatoes	Panama	67 g/kg WG (BAS 536 02 F)	ground spraying	1 - 4	5 - 10	0.034	min 400	0.101 - 0.134	4
Potatoes	Peru	50 g/kg WG (BAS 518 01 F)	spraying	1 - 2	7 - 10	---	---	0.125	15
Potatoes	Poland	40 g/L EC (BAS 536 01 F)	spraying	1 - 3	7 - 10	0.05	200 - 400	0.08 - 0.1	7
Potatoes	Portugal	40 g/L EC (BAS 536 01 F)	spraying	1 - 3	7 - 10	0.01	1000	0.08 - 0.1	7
Potatoes	Russia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 12	0.005	400	0.013 - 0.02	7
Potatoes	Slovakia	67 g/kg WG (BAS 516 07 F)	spraying	1 - 4	10 - 21	0.008	200 - 400	0.017	3
Potatoes	South Africa	128 g/kg WG (BAS 516 04 F)	ground spraying	1 - 3	10 - 14	0.038	min 500	0.192	14
			aerial spraying			0.64	30 - 40		
Potatoes	Spain	40 g/L EC (BAS 536 01 F)	spraying	1 - 3	10	0.013	800 - 1000	0.08 - 0.1	3
Potatoes	Sweden	67 g/kg WG (BAS 516 07 F)	spraying	4	5 - 10	0.011	150 - 400	0.017	3
Potatoes	Taiwan Province of China	67 g/kg WG (BAS 536 02 F)	spraying	1 - 4	7	0.027	500 - 2000	0.034 – 0.134	7
Potatoes	Ukraine	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.008	250 - 1000	0.017 - 0.02	20
Potatoes	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	6	7 - 14	---	max 127,000	0.109 - 0.219	3
			ground spraying			---	thorough coverage		
			aerial spraying			0.346	min 47		
Potatoes	USA	50 g/kg WG (BAS 518 01 F)	sprinkler irrigation	3	7 - 14	---	max 84,600	0.112 - 0.163	3 / 14*
			ground spraying			0.116	min 140		
			aerial spraying			0.346	min 47		

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Potatoes	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	6	7 - 14	---	max 127,000	0.11 - 0.22	3
			ground spraying			---	thorough coverage		
			aerial spraying			0.468	min 47		
Potatoes	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.055 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.213	min 47		
Potatoes	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.025	min 19		
Yams	China	40 g/kg WG (BAS 584 01 F)	spraying	3	7 - 10	---	---	0.08 – 0.1	7
Yams	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	6	7 - 14	---	max 127,000	0.109 - 0.219	3
			ground spraying			---	thorough coverage		
			aerial spraying			0.346	min 47		
Yams	USA	250 g/L SC (BAS 500 17 F BAS 500 22 F)	sprinkler irrigation	6	7 - 14	---	max 127,000	0.11 - 0.22	3
			ground spraying			---	thorough coverage		
			aerial spraying			0.468	min 47		
Yams	USA	250 g/L SC (BAS 703 01 F BAS 703 06 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.055 - 0.1	7
			ground spraying			---	thorough coverage		
			aerial spraying			0.213	min 47		
Yams	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	7 - 14	---	max 127,000	0.097 - 0.195	7
			ground spraying			---	thorough coverage		
			aerial spraying			1.025	min 19		

Table 36 Registered uses of pyraclostrobin in stalk and stem vegetables – Stems and petioles (subgroup 017A)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Fennel (bulb)	Poland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14 - 21	0.017	600 - 800	0.101	14
Fennel (bulb)	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Fennel (bulb)	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	1 - 2	7	---	max 127,000	0.094 – 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Cardoon and celtuce	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Cardoon and celtuce	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	1 - 2	7	---	max 127,000	0.094 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Celery (stalks + foliage)	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14 - 21	---	---	0.101	14
Celery (stalks + foliage)	Chile	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	2 - 3	10 - 15	---	---	0.125 - 0.188	7
Celery (stalks + foliage)	Poland	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14 - 21	0.017	600 - 800	0.101	14
Celery (stalks + foliage)	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	1 - 2	7	---	max 127,000	0.094 - 0.224	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.477	min 47		
Celery (stalks + foliage)	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Rhubarb	Germany	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	7 - 14	0.025	400 - 1000	0.101	post harvest use

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Rhubarb	USA	200 g/kg WG (BAS 500 02 F)	sprinkler irrigation	2	7 - 14	---	max 127,000	0.117 - 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		
Rhubarb	USA	128 g/kg WG (BAS 516 04 F)	sprinkler irrigation	1 - 2	7	---	max 127,000	0.094 – 0.234	0
			ground spraying			---	thorough coverage		
			aerial spraying			0.498	min 47		

Table 37 Registered uses of pyraclostrobin in asparagus

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Asparagus (shoots)	Austria	67 g/kg WG (BAS 516 07 F)	spraying	2	7 - 14	0.025	400 - 600	0.1	Post-harvest [a]
Asparagus (shoots)	Belgium	67 g/kg WG (BAS 516 07 F)	spraying	2	21 - 28	---	---	0.1	Post-harvest
Asparagus (shoots)	Croatia	67 g/kg WG (BAS 516 07 F)	spraying	2	14	0.025	400 - 600	0.1	Post-harvest
Asparagus (shoots)	Czech Republic	67 g/kg WG (BAS 516 07 F)	spraying	2	14 - 21	0.025	400 - 600	0.1	Post-harvest [a]
Asparagus (shoots)	France	67 g/kg WG (BAS 516 07 F)	spraying	2	10 - 14	---	---	0.1	Post-harvest [b]
Asparagus (shoots)	Germany	67 g/kg WG (BAS 516 07 F)	spraying	2	14 - 21	0.025	400 - 600	0.1	Post-harvest [a]
Asparagus (shoots)	Greece	67 g/kg WG (BAS 516 07 F)	spraying	2	10 - 15	0.007	1000	0.05 - 0.067	Post-harvest [c] [d]
Asparagus (shoots)	Hungary	67 g/kg WG (BAS 516 07 F)	spraying	1 - 2	14	0.025	400 - 1000	0.067 - 0.1	Post-harvest [a]
Asparagus (shoots)	Italy	67 g/kg WG (BAS 516 07 F)	spraying	3	10 - 15	0.01	1000	0.067 - 0.1	Post-harvest [c] [d]
Asparagus (shoots)	Mexico	133 g/L SE (BAS 512 00 F BAS 512 19 F)	spraying	2	14	0.02	700 - 800	0.067 - 0.13	40 [e]
Asparagus (shoots)	Netherlands	67 g/kg WG (BAS 516 07 F)	spraying	1 - 3	14	---	---	0.05	Post-harvest [f]
Asparagus (shoots)	Peru	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	1 - 2	---	0.02	500	0.08 - 0.1	40 [g]
Asparagus (shoots)	Peru	200 g/kg WG (BAS 500 02 F)	spraying	1	---	---	---	0.04 - 0.05	40 [g]

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Asparagus (shoots)	Peru	133 g/L SE (BAS 512 00 F BAS 512 19 F)	spraying	2	14 - 21	---	---	0.067 – 0.1	40 [g]
Asparagus (shoots)	Peru	50 g/kg WG (BAS 518 01 F)	spraying	2	14	---	---	0.125	40 [g]
Asparagus (shoots)	Poland	67 g/kg WG (BAS 516 07 F)	spraying	2	21 - 28	0.017	600 - 800	0.1	Post-harvest [c]
Asparagus (shoots)	Slovakia	67 g/kg WG (BAS 516 07 F)	spraying	2	14 - 21	0.025	400 - 600	0.1	Post-harvest [c]
Asparagus (shoots)	Slovenia	67 g/kg WG (BAS 516 07 F)	spraying	2	14 - 21	0.025	400 - 600	0.1	Post-harvest [c]
Asparagus (shoots)	Spain	67 g/kg WG (BAS 516 07 F)	spraying	2	10	0.025	400 - 1000	0.067 - 0.101	Post-harvest [c]

[a] not before BBCH 69

[b] PHI not given on the label, because it is not applicable for a post-harvest use

[c] PHI not applicable for a post-harvest use

[d] PHI >120 days

[e] PHI = 40 days means post-harvest use (see also 7)

[f] to be applied from the beginning of August to the end of September

[g] local MRL set at LOQ (0.02 mg/kg) due to post harvest use

Table 38 Registered uses of pyraclostrobin in rice

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Rice (grain and straw)	China	100 g/L CS (BAS 500 23 F)	spraying	2	---	---	---	0.075 – 0.11	28
Rice (grain and straw)	Dominican Republic	100 g/L CS (BAS 500 23 F)	spraying	2	10 - 15	---	---	0.075 - 0.1	35 [a]
Rice (grain and straw)	Guatemala	100 g/L CS (BAS 500 23 F)	spraying	2	10 - 15	---	---	0.075 - 0.1	35 [a]
Rice (grain and straw)	India	100 g/L CS (BAS 500 23 F)	spraying	2	10 - 15	0.02	500	0.1	18 [b]
Rice (grain and straw)	Indonesia	100 g/L CS (BAS 500 23 F)	spraying	2	10	---	---	0.1	[c]
Rice (grain and straw)	Malaysia	100 g/L CS (BAS 500 23 F)	spraying	2	30 - 50	0.033	300	0.075 - 0.1	30
Rice (grain and straw)	Panama	100 g/L CS (BAS 500 23 F)	spraying	2	10 - 15	---	---	0.075 - 0.1	35 [a]
Rice (grain and straw)	Peru	100 g/L CS (BAS 500 23 F)	spraying	2	---	---	---	0.09 - 0.1	45
Rice (grain and straw)	Turkey	100 g/L CS (BAS 500 23 F)	spraying	2	30	---	---	0.1	35

[a] latest application at 5% of flowering (< BBCH 65)

[b] latest application at flowering stage

[c] latest application at mid of flowering (BBCH 65)

Table 39 Registered uses of pyraclostrobin in sugar cane

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Production of sugar cane: In the first year, cane setts (i.e. pieces of the stalks) are planted in watered furrows often followed by an in-furrow application of fungicides. During the growth phase of the sugar cane plants, foliar fungicide spray applications are conducted. After the first harvest of the sugar cane stalks, the perennial crop remains planted and will grow again for several seasons without re-planting.									
Sugar cane	Brazil	250 g/L EC (BAS 500 01 F BAS 500 14 F)	in-furrow	1	---	0.157	80 - 100	0.1 - 0.125	n.a.
			spraying	1	---	0.157	100	0.1 - 0.125	30
Sugar cane	Brazil	133 g/L SE (BAS 512 00 F BAS 512 19 F)	spraying	5	30	0.13	100	0.11 - 0.13	30
Sugar cane	Brazil	260 g/L SC (BAS 512 14 F)	spraying	5	30	0.13	100 - 250	0.1 - 0.13	30
Sugar cane	Brazil	333 g/L SC (BAS 703 02 F)	in-furrow	1	---	0.133	100	0.1 - 0.133	n.a.
			ground spraying	5	21 - 30	0.089	150 - 200		30
			aerial spraying			0.667	20 - 30		
Sugar cane	Costa Rica Dominican Rep. El Salvador Guatemala Honduras Nicaragua	250 g/L EC (BAS 500 00 F BAS 500 13 F)	1st spraying (ground)	2	120	---	150 - 200	0.188	180
			2nd spraying (aerial)				18.8 - 22.5	0.125	
Sugar cane	Mexico	250 g/L EC (BAS 500 13 F)	spraying	2	14	0.125	200 - 500	0.125 - 0.25	30
Sugar cane	Mexico	133 g/L SE (BAS 512 00 F BAS 512 19 F)	spraying	2	28	0.007	1950 - 2050	0.106 - 0.133	70
Sugar cane	South Africa	63 g/L SE (BAS 512 06 F BAS 512 18 F)	ground spraying	2	30	0.05	200	0.1	60
			aerial spraying			0.333	30		
Sugar cane	USA	250 g/L EC (BAS 500 00 F BAS 500 05 F BAS 500 08 F BAS 500 16 F)	sprinkler irrigation	3	14 - 28	---	max 127,000	0.164 - 0.219	14
			ground spraying			---	thorough coverage		
			aerial spraying			0.466	min 47		
Sugar cane	USA	333 g/L SC (BAS 703 02 F BAS 703 05 F BAS 703 09 F)	sprinkler irrigation	1 - 3	14 - 28	---	max 127,000	0.093 – 0.21	14
			ground spraying			---	thorough coverage		
			aerial spraying			0.447	min 47		

Table 40 Registered uses of pyraclostrobin in olives for oil production

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Olives for oil production	Australia	50 g/kg WG (BAS 518 01 F)	spraying	2	21	0.01	thorough coverage	---	(21) [a]
Olives for oil production	Chile	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	2	10 - 14	---	---	0.125	[b]
Olives for oil production	France	200 g/kg WG (BAS 500 02 F)	spraying	1 - 2	21	---	---	0.1	F [c]
Olives for oil production	Italy	200 g/kg WG (BAS 500 02 F)	spraying	1	---	0.01	1000	0.1	120 [d]

[a] preferably 1st application prior to flowering and 2nd application just after fruit set

[b] latest application end of flowering

[c] latest application at BBCH 71 (10% of fruit size achieved) based on the concluded evaluation, label is expected to be available in Q2 2018

[d] latest application end of July (only olives for oil production are registered)

Table 41 Registered uses of pyraclostrobin in cacao beans (group 024)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Cacao beans	Brazil	133 g/L SE (BAS 512 00 F BAS 512 19 F)	spraying	3	30	0.02	1000	0.133 - 0.2	14
Cacao beans	Ivory Coast	40 g/L EC (BAS 536 01 F)	spraying	4	21 - 28	---	---	0.006 - 0.016	7
Cacao beans	Nigeria	40 g/L EC (BAS 536 01 F)	spraying	---	21	0.052	200 - 300	0.08 - 0.104	15
Cacao beans	Peru	250 g/L EC (BAS 500 01 F BAS 500 14 F)	spraying	1 - 2	---	---	---	0.125	Not deter-mined

Table 42 Registered uses of pyraclostrobin in teas (group 066)

Crop (commodity)	Country	Formulation (BASF code)	Application			Application rate per treatment			PHI [days] min
			Method	No. per crop and season min - max	Application interval [days]	kg as/hL max	Water L/ha min - max	kg ai/ha min - max	
Tea (dried leaves)	China	250 g/L EC (BAS 500 13 F)	spraying	2	7 - 10	dilution rate: 1000 - 2000	---	---	21
Tea (dried leaves)	Japan	68 g/kg WG (BAS 516 05 F)	spraying	1 - 2	---	0.003	2000 - 4000	0.068 - 0.136	7
Tea (dried leaves)	Taiwan Province of China	250 g/L EC (BAS 500 13 F)	spraying	Early stage of disease	7 - 10	0.008	900 - 3000	0.075 - 0.25	21

RESIDUES RESULTING FROM SUPERVISED TRIALS

The Meeting received information on supervised trials conducted in North America, Asia, Australia, Brasil and Europe with pyraclostrobin. The Meeting reviewed information on supervised trials for the following crops:

Crop	Table No.
Pear	43
Table olives	44
Litchi,	45
Avocado	46
Mango	47
papaya	48
Pineapple	49
Passion fruit	50
Spinach	51
Lettuce	52
Witloof chicory	53
Green bean	54
Broad bean	55
Common bean	56
Pea	57
Dry pea	58
Lentil	59
Celeriac	60
Celery	61
Asparagus	62
Rice	63
Sugar cane	64
Table olives	65
Cacao beans	66
Tea	67

Group 002 - Pome fruits

Pyraclostrobin is registered for the use in pome fruits in multiple countries. The application rates are similar all across the world; the main difference is the pre-harvest interval. Due to a shorter PHI, the GAPs from the USA should result in higher residue levels compared to those from the EU. However, the available residue data from the USA in apples and pears were not performed at the cGAP (6 instead of 4 applications). Therefore, the intended critical use of pyraclostrobin in pome fruits (apples, pears and globally accepted extrapolations) as supported by field residue data consists of maximum 4 foliar applications of 0.102 kg ai/ha each (total maximum seasonal application of 0.408 kg ai/ha). The PHI is 7 days. The critical GAP is supported either directly by residue data or indirectly by extrapolation.

The apple and pear data, based on a PHI of 7 days, selected for use in maximum residue level estimation are underlined and bolded. When higher residues occurred at later sampling intervals than the proposed PHI, these residue values were selected. In case of replicate values for the same sample, the average value was used for maximum residue level estimation.

Apple

No new apple trials were submitted. The 2006 JMPR reported the results of supervised trials carried out in different representative apple growing areas in Belgium, France, Germany, Italy and the Netherlands.

Pear

During the 2014 growing season, eight trials were conducted in Northern Europe and Southern Europe on pear under field conditions. Trials were conducted in Southern France, Germany, Greece, Italy, the Netherlands, Poland, Spain and the United Kingdom in order to determine the magnitude and decline of residues of pyraclostrobin and its metabolite 500M07 in pears after four applications of BAS 516 04 F (DocID 2016/1041500). The fungicidal formulation BAS 516 04 F (WG, 12.8% pyraclostrobin and 25.2% boscalid) was applied four times at a rate of 0.8 kg formulation/ha (0.1024 kg pyraclostrobin/ha and 0.2016 kg boscalid/ha) at 33–36 days before harvest (DBH), 27–30 DBH, 20–23 DBH and 14–15 DBH. Immediately before the last application (untreated plot) and immediately after the last application (treated plot), pear fruit specimens were sampled. Additional pear fruit specimens were taken at 7–8, 14–15 and 21–22 DALA (days after last application) from the treated and untreated plots.

All applications were made as foliar spray, using commercial ground equipment which simulated commercial applications. Minimum 2 kg (12 fruit) specimens were generally collected. Control (untreated) specimens were taken at every time point, and were collected prior to collection of the treated specimens to avoid contamination. All specimens were frozen within 6 hours of being taken, and remained frozen at or below -18 °C including during transportation, until analysis. The maximum storage interval from harvest until analysis was 501 days.

All fruit specimens were analysed for pyraclostrobin and its metabolite 500M07 using BASF method no. L0076/01, which has a LOQ of 0.01 mg/kg. Procedural recovery experiments resulted in a mean recovery of 91.9% for pyraclostrobin at fortification levels of 0.01, 0.10 and 0.80 mg/kg and a mean recovery of 97.9% for 500M07 at fortification levels of 0.01 and 0.10 mg/kg.

Table 43 Results of residue trials with pyraclostrobin conducted in pear, foliar application

CROP Country, Year Location (variety) Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg][b]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP:4 × 0.102 kg ai/ha, PHI 7days								
Germany (N-EU) 2014 55262 Heidesheim (Graefin von Paris) L140646	4× 0.1024	500	0 8 14 21	fruit fruit fruit fruit	0.075 0.068 0.048 0.042	0.011 0.014 0.012 0.012	0.087 0.083 0.060 0.053	Schneider, E. 2016 715203 2016/1041500
The Netherlands (N-EU) 2014 6561 KR Gelderland (Doyenné du Comice) L140647	4× 0.1024	500	0 8 15 22	fruit fruit fruit fruit	0.38 0.19 0.23 0.17	0.038 0.034 0.036 0.030	0.42 0.23 0.27 0.20	Schneider, E. 2016 715203 2016/1041500
Poland (N-EU) 2014 95-061 Dmosin (Konferencja) L140648	4× 0.1024	500	0 7 14 22	fruit fruit fruit fruit	0.20 0.29 0.24 0.17	0.019 0.037 0.035 0.024	0.22 0.33 0.27 0.20	Schneider, E. 2016 715203 2016/1041500
United Kingdom (N-EU) 2014 GL54 5PB Winchcombe (Conference) L140649	4× 0.1024	500	0 7 14 21	fruit fruit fruit fruit	0.60 0.69 0.44 0.45	0.10 0.14 0.14 0.13	0.70 0.83 0.58 0.58	Schneider, E. 2016 715203 2016/1041500
France (S-EU) 2014 84100 Orange (Guyot) L140650	4× 0.1024	500	0 8 15 22	fruit fruit fruit fruit	0.17 0.058 0.046 0.032	0.015 0.013 0.013 0.011	0.19 0.070 0.059 0.043	Schneider, E. 2016 715203 2016/1041500
Greece (S-EU) 2014 58500 Arseni (Krystali) L140651	4× 0.1024	500	0 7 14 22	fruit fruit fruit fruit	0.16 0.12 0.086 0.061	0.016 0.021 0.017 0.012	0.18 0.14 0.10 0.073	Schneider, E. 2016 715203 2016/1041500
Italy (S-EU) 2014 15059 Volpedo (Santa Maria) L140652	4× 0.1024	500	0 8 14 20	fruit fruit fruit fruit	0.16 0.069 0.047 0.029	0.013 0.012 0.014 <0.011	0.17 0.081 0.060 0.040	Schneider, E. 2016 715203 2016/1041500

CROP Country, Year Location (variety) Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg][b]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
Spain (S-EU) 2014 17243 Llambilles (Conference) L140653	4× 0.1024	500	0 7 14 22	fruit fruit fruit fruit	0.38 0.27 0.20 0.16	0.021 0.038 0.029 0.027	0.40 0.30 0.22 0.17	Schneider, E. 2016 715203 2016/1041500

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

PHI = Pre harvest interval

For calculation purposes <0.02 is set 0.02

_ underlined values were used for MRL calculation

Assorted tropical and sub-tropical fruits – edible peel

Table olives

The intended critical use of pyraclostrobin (BAS 500 F) in table olives (harvested at BBCH 79) as supported by field residue data consists of maximum 2 foliar applications before harvest at an application rate of 0.1 kg ai/ha (total maximum seasonal application before harvest of 0.2 kg ai/ha). The PHI is determined by the growth stage at last application (BBCH 71). The resulting PHI was determined to be between 83 and 142 days in the residue trials, which covers the time between last application and harvest in agricultural practice.

During the 2011 growing season, a total of four field trials (Greece, Italy and Spain) were conducted in table olives to determine the magnitude at harvest, and the decline, of the residues of pyraclostrobin (BAS 500 F) in or on table olives (BASF DocID 2012/1143392). For table olives, the formulation BAS 500 02 F was applied twice as a foliar treatment at a rate of 0.100 kg ai/ha and in a spray volume of 1000 L/ha. Application timings were 21±1 days before the second application (preferably at BBCH 69) for the first and at BBCH 71 for the second application. The control plot remained untreated. Whole olive fruits with stones were collected either before the last application (for control plot) or directly after the last application. Olive fruits without stones were sampled at BBCH 79 (harvest timing of table olives, 83–105 DALA).

During the 2012 growing season, a total of four field trials (Greece, Italy and Spain) were conducted in table olives to determine the magnitude at harvest, and the decline, of the residues of pyraclostrobin (BAS 500 F) in or on table olives (BASF DocID 2013/1078066 and 2017/1115705). For table olives the formulation BAS 500 02 F was applied twice as a foliar treatment at a rate of 0.100 kg a.s./ha and in a spray volume of 1000 L/ha. Application timings were at BBCH 69 for the first and BBCH 71 for the second application. The control plot remained untreated. Whole olive fruits with stones were collected either before the last application (for control plot) or directly after the last application. Olive whole fruits without stone were sampled at BBCH 79 (harvest timing of table olives, 90–105 DALA).

During the 2011 growing season, a total of four field trials were conducted in olives to determine the magnitude at harvest of the residues of pyraclostrobin (BAS 500 F) in or on olives (BASF DocID 2012/1166150). The trials were carried out on olive under open field conditions in Southern Italy to determine the residue of pyraclostrobin and its metabolite 500M07 at harvest. In all the trials, one application of INSIGNIA (BAS 500 02 F, 0.5 kg/ha) was made during July (BBCH 75–77) at the nominal application rate of 0.1 kg as/ha and 1000 L/ha as water spray volume. One plot of at least 6 trees was used as treated plot and one plot with the same characteristics served as control plot, untreated. First sampling was performed immediately after last application (0 DALA, BBCH 75–77). The trials were not set up as decline trials; the samples were taken at the growth stage of commercial harvest (109–142 days after last application (DALA), BBCH 87–89). All applications were made as foliar spray, using backpack power sprayer or knapsack sprayer equipment.

All specimens were analysed for pyraclostrobin and its metabolite 500M07 using BASF method no. 535/1. The method has a limit of quantitation of 0.01 mg/kg for both analytes. The results of procedural recovery experiments were a mean recovery of 84.3% for pyraclostrobin at fortification levels of 0.01, 0.10, 1.0 and 10 mg/kg and a mean recovery of 78% for 500M07.

Table 44 Results of residue trials with pyraclostrobin conducted in table olive (according to critical GAP), foliar application

CROP Country, Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg] [a]	Residue 500M07 [mg/kg] [a b]	Total Residue [mg/kg] [a c]	Author Report Year Study No. DocID
cGAP: 2 × 0.1 kg ai/ha, PHI determined by the growth stage at BBCH 71								
Spain 2011 Turis (Manzanilla) L110411	2× 0.100	1000	0 105 Residues calculated in/as whole olive fruits: 0 105	Whole fruit Fruit w/o stones Whole fruit Whole fruit*	0.62 < 0.01 0.62 <0.01	<0.01 <0.01 <0.01 <0.01	0.63 <0.02 0.63 <0.02	Schaeufele, M. 2012 400808 2012/1143392
Spain 2011 Pabla de Vallbona (Villalonga) L110412	2× 0.100	1000	0 104 Residues calculated in/as whole olive fruits: 0 104	Whole fruit Fruit w/o stones Whole fruit Whole fruit*	0.52 <0.01 0.52 <0.01	<0.01 <0.01 <0.01 <0.01	0.53 <0.02 0.53 <0.02	Schaeufele, M. 2012 400808 2012/1143392
Italy 2011 Orta Nova (Leccino) L110413	2× 0.100	1000	0 92 Residues calculated in/as whole olive fruits: 0 92	Whole fruit Fruit w/o stones Whole fruit Whole fruit*	0.77 <0.01 0.77 <0.01	0.016 <0.01 0.016 <0.01	0.78 <0.02 0.078 <0.02	Schaeufele, M. 2012 400808 2012/1143392
Greece 2011 Nea Skioni (Chondroelia Chalkidikis) L110414	2× 0.100	1000	0 83 Residues calculated in/as whole olive fruits: 0 83	Whole fruit Fruit w/o stones Whole fruit Whole fruit*	1.4 <0.01 1.4 <0.01	0.011 <0.01 0.011 <0.01	1.4 <0.02 1.4 <0.02	Schaeufele, M. 2012 400808 2012/1143392
Spain 2012 41620 Seville (Hojiblanca) L120296	2× 0.100	1000	0 105 Residues calculated in/as whole olive fruits: 0 105	Whole fruit Fruit w/o stones Whole fruit Whole fruit**	0.76 <0.01 0.76 <0.01	0.013 <0.01 0.013 <0.01	0.77 <0.02 0.77 <0.02	Galvez, O. 2013 400810 2013/1078066 2017/1115705
Spain 2012 41540 Seville (Hojiblanca) L120297	2× 0.100	1000	0 105 Residues calculated in/as whole olive fruits: 0 105	Whole fruit Fruit w/o stones Whole fruit Whole fruit**	0.90 <0.01 0.90 <0.01	0.017 <0.01 0.017 <0.01	0.92 <0.02 0.92 <0.02	Galvez, O. 2013 400810 2013/1078066 2017/1115705
Italy 2012 Taranto (Bella di Cerignola) L120298	2× 0.100	1000	0 90 Residues calculated in/as whole olive fruits: 0 90	Whole fruit Fruit w/o stones Whole fruit Whole fruit**	0.29 <0.01 0.29 <0.01	<0.01 <0.01 <0.01 <0.01	0.30 <0.02 0.30 <0.02	Galvez, O. 2013 400810 2013/1078066 2017/1115705
Greece 2012 Chalkidiki (Chontroelia Chalkidikis) L120299	2× 0.100	1000	0 90 Residues calculated in/as whole olive fruits: 0 90	Whole fruit Fruit w/o stones Whole fruit Whole fruit**	0.81 <0.01 0.81 <0.01	0.025 <0.01 0.025 <0.01	0.83 <0.02 0.83 <0.02	Galvez, O. 2013 400810 2013/1078066 2017/1115705
Italy 2011 Bari (Coratina) I150	1× 0.100	1000	0 135	Whole fruit Whole fruit	0.66 <0.01	<0.01 <0.01	0.67 <0.02	Miserochi, G. 2012 400808_1 2012/1166150
Italy 2011 Bari (Cima di Melfi) I151	1× 0.100	1000	0 142	Whole fruit Whole fruit	0.58 <0.01	<0.01 <0.01	0.59 <0.02	Miserochi, G. 2012 400808_1 2012/1166150
Italy 2011 Bari (Ogliarola) I152	1× 0.100	1000	0 109	Whole fruit Whole fruit	0.12 <0.01	<0.01 <0.01	0.12 <0.02	Miserochi, G. 2012 400808_1 2012/1166150

CROP Country, Year Location (variety) Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg] [a]	Residue 500M07 [mg/kg] [a b]	Total Residue [mg/kg] [a c]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
Italy 2011 Brindisi (Leccino) I153	1× 0.100	1000	0 130	Whole fruit Whole fruit	0.14 0.012	<0.01 <0.01	0.14 0.022	Miserochi, G. 2012 400808_1 2012/1166150

[a] Values between 0.003 and 0.01 mg/kg are reported as <0.01 mg/kg

[b] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[c] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08), for calculation purposes <0.02 was set to 0.02;

_ underlined values indicate highest residues values of samples representing commercial harvest time

* Residues calculated in/as whole olive fruits (due to the fact that for the specimens from plot 2 collected at PHI = 83-105 days residue values were only determined for fruits without stones; re-calculation was based on the assumption that no residues of pyraclostrobin are to be found in olive stones)

The following values for "weight of flesh/(weight of flesh + weight of stones)" are supplied in the study report (plot 2):

L110411: 0.660, L110412: 0.480, L100413: 0.562, L110414: 0.697

** Residues calculated in/as whole olive fruits (due to the fact that for the specimens from plot 2 collected at PHI = 90-105 days residue values were only determined for fruits without stones; re-calculation was based on the assumption that no residues of pyraclostrobin are to be found in olive stones)

The following values for "weight of flesh/(weight of flesh + weight of stones)" are supplied in the study report (plot 2, mean of 2 values each): L120296: 0.56, L120297: 0.69, L120298: 0.39, L120299: 0.28.

Group 006 - Assorted tropical and sub-tropical fruits – inedible peel

Litchi

The critical use of pyraclostrobin in litchi as supported by field residue data consists of maximum 3 foliar applications of 0.2 kg as/ha each (total maximum seasonal application of 0.6 kg as/ha). The PHI is 3 days.

During the 2013 growing season, four field trials were conducted in Australia to determine the magnitude of residues of pyraclostrobin (BAS 500 F) in litchi (DocID 2014/8000504). The WG formulation Pristine (BAS 516 04 F: 128 g/kg pyraclostrobin and 252 g/kg boscalid) was applied three times at 0.050 and 0.100 kg a.s./ha at 23, 13 and 3 days before typical commercial harvest, with samples taken 0, 1 and 3 DALA. The EC formulation Cabrio (BAS 500 13 F: 250 g/L pyraclostrobin) was applied at 0.070 and 0.140 kg a.s./ha, following the same application and sampling schedule as Pristine. The spray volume was 500 L/ha (site 1) and 700 L/ha (site 2). Treatment was applied using a back pack mist blower. Specimens were collected randomly throughout the plot. All specimens collected were commercially representative. Following collection, specimens were stored at the managing test site, in freezers at or below -10 °C for the duration of sample storage (188 days).

Table 45 Results of residue trials with Pristine (WG) and Cabrio (EC) conducted in litchi, foliar application

Country Year Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg]	Total Residue [mg/kg]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP: 3 × 0.01 kg ai/hL, PHI 3 day								
Australia 2013 Mareeba / North Queensland Site 1	3× 0.050	500	0 0 0 1 1 1 3 3 3	Peel Pulp Whole fruit Peel Pulp Whole fruit Peel Pulp Whole fruit	NA NA 0.893 NA NA 0.462 NA NA 0.338	- - - - - - - - -	- - - - - - - - -	Griffin, D., Greenhill, A. 2014 13-HAL- 010GLP 2014/8000504
	3× 0.100	500	0 0 0 1 1	Peel Pulp Whole fruit Peel Pulp	NA NA 1.653* 2.884* 0.050*	- - - - -	- - - - -	

Country Year Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg]	Total Residue [mg/kg]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
			1	Whole fruit	0.885*	-	-	
			3	Peel	2.559	-	-	
			3	Pulp	0.040	-	-	
			3	Whole fruit	0.754	-	-	
			3	Whole fruit	1.508*			
	3× 0.050	500	0	Peel	NA	-	-	
			0	Pulp	NA	-	-	
			0	Whole fruit	0.530	-	-	
			1	Peel	NA	-	-	
			1	Pulp	NA	-	-	
			1	Whole fruit	0.774	-	-	
			3	Peel	NA	-	-	
			3	Pulp	NA	-	-	
			3	Whole fruit	0.865	-	-	
	3× 0.100	500	0	Peel	NA	-	-	
			0	Pulp	NA	-	-	
			0	Whole fruit	1.978*	-	-	
			1	Peel	6.255*	-	-	
			1	Pulp	0.031*	-	-	
			1	Whole fruit	1.616*	-	-	
			3	Peel	3.914	-	-	
			3	Pulp	0.025	-	-	
			3	Whole fruit	0.984	-	-	
			3	Whole fruit	1.968*			
Australia 2013 South Bingera / South Queensland Site 2	3× 0.070	700	0	Peel	NA	-	-	Griffin, D., Greenhill, A. 2014 13-HAL-010GLP 2014/8000504
			0	Pulp	NA	-	-	
			0	Whole fruit	0.789	-	-	
			1	Peel	NA	-	-	
			1	Pulp	NA	-	-	
			1	Whole fruit	0.532	-	-	
			3	Peel	NA	-	-	
			3	Pulp	NA	-	-	
			3	Whole fruit	0.366	-	-	
	3× 0.140	700	0	Peel	NA	-	-	
			0	Pulp	NA	-	-	
			0	Whole fruit	1.162*	-	-	
			1	Peel	4.597	-	-	
			1	Pulp	0.108	-	-	
			1	Whole fruit	1.220	-	-	
			3	Peel	3.725	-	-	
			3	Pulp	0.094	-	-	
			3	Whole fruit	1.003	-	-	
			3	Whole fruit	1.433*			
	3× 0.070	700	0	Peel	NA	-	-	
			0	Pulp	NA	-	-	
			0	Whole fruit	0.526	-	-	
			1	Peel	NA	-	-	
			1	Pulp	NA	-	-	
			1	Whole fruit	0.459	-	-	
			3	Peel	NA	-	-	
			3	Pulp	NA	-	-	
			3	Whole fruit	0.456	-	-	
	3× 0.140	700	0	Peel	NA	-	-	
			0	Pulp	NA	-	-	
			0	Whole fruit	0.735*	-	-	
			1	Peel	4.939	-	-	
			1	Pulp	0.078	-	-	
			1	Whole fruit	1.296	-	-	

Country Year Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg]	Total Residue [mg/kg]	Author Report Year Study No. DocID
			3	Peel	2.686	-	-	
			3	Pulp	<0.01	-	-	
			3	Whole fruit	0.757	-	-	
			3	Whole fruit	1.081*			

* mean of two values

NA – analysis not applicable to sample

_ underlined values were used for MRL calculation

* = value of proportionality calculation (residue according to an application rate of 0.200 kg ai/ha)

Assorted tropical and sub-tropical fruits – inedible smooth peel – large (subgroup 006B)

The intended critical use of pyraclostrobin in large assorted tropical and sub-tropical fruits with inedible smooth peel as supported by field residue data consists of maximum 2 foliar applications of 0.166 kg as/ha for avocado, 4 foliar applications of 0.133 kg as/ha for mango and 4 foliar applications of 0.100 kg as/ha for papaya. The PHI is 0 days for avocado and 7 days for mango and papaya.

The critical GAPs for avocado, mango and papaya are listed in the following table. The critical GAP is supported either directly by residue data or indirectly by extrapolation. The residue data for banana are provided to allow a comprehensive evaluation of the crop group.

Avocado

The intended critical use of pyraclostrobin in avocado as supported by field residue data consists of maximum 2 foliar applications of 0.166 kg as/ha for avocado,. The PHI is 0 days

During the 2015 growing season, four field trials were conducted in the USA to determine the magnitude of residues of pyraclostrobin (BAS 500 F) in avocado (DocID 2016/7005744). The formulation BAS 516 04 F (WG, 128 g/kg pyraclostrobin and 252 g/kg boscalid) was foliar applied twice at rates between 0.166–0.168 kg ai/ha pyraclostrobin in a spray volume of 310–361 L/ha. Tractor mounted, broadcast air-blast applications were done approximately 7 and 0 days before sampling. In all trials, fruit samples were taken on the day of the last application (0 DALA). For one decline trial, additional samples of avocado were collected at 3, 10 and 14 DALA.

At each sampling event, the untreated plot was sampled before the treated plot or by different personnel to avoid contamination. Samples were picked by hand and were collected from trial plots as whole fruit then de-pitted in the field. Each RAC sample weighed a minimum of 2 kg and included a minimum of 24 fruit samples. Samples were placed into pre-labelled sample bags provided by the Testing Facility. All avocado samples were analysed for residues of pyraclostrobin and its metabolite 500M07 using BASF Crop Protection Method No. D9908. The method performance was verified during sample analysis by determining the recoveries from control samples of avocado fortified with pyraclostrobin and its metabolite 500M07 at 0.02, 0.15 and 2.0 mg/kg. The recoveries for pyraclostrobin in avocado were between 72% and 92% with an average and RSD of 80.8% ± 10.9. 500M07 recoveries in avocado were between 60% and 89% with an average and RSD of 75.5% ± 16. The method LOQ was 0.02 mg/kg for both analytes. All avocado control samples were free from interferences.

Samples were stored frozen for 98–221 days at -20 °C between sample harvest to sample extraction. Residues of pyraclostrobin and its metabolite 500M07 are stable under frozen storage conditions in/on fortified samples of grape juice, sugar beet tops and roots, tomatoes, and wheat grain and straw for up to 25 months and in/on peanut nutmeat and processed oil for up to 19 months (BASF Doc ID: 2001/5000323 (MRID 45429901)). These data support the storage intervals and conditions incurred by the residue samples in this study.

Table 46 Results of residue trials with BAS 516 04 F (WG) conducted in avocado (according to critical GAP), foliar application

Country Year Trial No.	Application Rate [kg ai/ha][a]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [b]	Total Residue [mg/kg][c]	Author Report Year Study No. DocID.
cGAP: 2 × 0.166, PHI 0 day								
USA 2015 Canal Point / FL	2× 0.168	317 - 330	0	Fruit	0.040	<0.02	0.060	Csinos 2016 776212

Country Year Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [b]	Total Residue [mg/kg][c]	Author Report Year Study No. DocID.
	Rate [kg ai/ha][a]	Spray volume [L/ha]						
cGAP: 2 × 0.166, PHI 0 day								
R150248								2016/7005744
USA 2015 Visalia / CA R150249	2× 0.168	360 - 361	0	Fruit	0.104	<0.02	0.124	Csinos 2016 776212 2016/7005744
USA 2015 Somis / CA R150250	2× 0.166	328 - 335	0	Fruit	0.065	<0.02	0.085	Csinos 2016 776212 2016/7005744
USA 2015 Slo /CA R150251	2× 0.166	310 - 337	0 3 10 14	Fruit Fruit Fruit Fruit	0.022 0.021 0.028 <0.02	<0.02 <0.02 <0.02 <0.02	0.042 0.041 0.048 0.040	Csinos 2016 776212 2016/7005744

[a] US rates derived from conversion factors: lb/acre (kg/ha x 1.12) and GAP = gal/acre (L/ha x 9.354)

[b] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[c] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

* mean of two values

_ underlined values were used for MRL calculation

Mango

The intended critical use of pyraclostrobin is 4 foliar applications of 0.133 kg as/ha for mango with a PHI of 7 days.

In 2010 and 2011, a total of four field trials were conducted in mango to determine the magnitude at harvest and the decline of the residues of pyraclostrobin (BAS 500 F) in Brazil (DocID 2013/7005693). Each trial consisted of two plots. The formulation BAS 703 02 F (SC, 333 g/L pyraclostrobin and 167 g/L fluxapyroxad) was foliar applied four times in trials G090371 and G090372 and once in trials G090373 and G090374 at a rate of 0.133 kg ai/ha for pyraclostrobin in a spray volume of 1000 L/ha and 0.5% v/v of non-ionic adjuvant. Application timings were between BBCH 71 and 89.

In 2016 and 2017, two field trials were conducted in mango to determine the magnitude at harvest and decline of the residues of pyraclostrobin (BAS 500 F) in Brazil (DocIDs 2017/3002801). Each trial consisted of two plots. The formulation BAS 703 02 F (SC, 333 g/L pyraclostrobin and 167 g/L fluxapyroxad) was foliar applied four times at a rate of 0.133 kg ai/ha for pyraclostrobin in a spray volume of 1000 L/ha and 0.5% v/v of non-ionic adjuvant. Application timings were between BBCH 79 and 89.

The samples were collected firstly from the untreated samples, followed by treated samples using disposable gloves, according to SOP-CP.004. After harvest the samples were double packed in plastic bags of high density, identified and sealed. The Mango samples, composed at least 12 fruits and 2 kg each, were maintained in freezer from the harvest/ cleanliness date until their dispatch to the laboratory. The samples were received and properly stored at cold room of the laboratory (operational temperature -20 °C or lower), before and after their preparation.

Mango samples were analysed for residues of pyraclostrobin and its metabolite 500M07 using the Analytical Method 535/1. The method performance was verified during sample analysis by determining the recoveries from control samples of mango fortified with pyraclostrobin and its metabolite 500M07 at 0.01 and 1.0 mg/kg. The mean recovery for pyraclostrobin in mango was 82% with an RSD of 12%. The mean recovery of 500M07 in mango was 84% with an RSD of 12%. The method LOQ was 0.01 mg/kg for both analytes.

Table 47 Results of residue trials with BAS 703 02 F (SC) conducted in mango (according to critical GAP), foliar application

Country Year Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP: 4 × 0.133, PHI 7days								
Brazil 2010 Santo Antônio	4× 0.133	1000	0 3 7	Fruit Fruit Fruit	0.09 0.08 0.08	<0.01 0.01 0.01	<0.10 0.09 0.09	Dantas, Cardoso 2013 374970

Country Year Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP: 4 × 0.133, PHI 7days								
di Posse / SP G090371			10 14	Fruit Fruit	0.07 0.07	<0.01 0.01	<0.08 0.08	2013/7005693
Brazil 2010 Anápolis / GO G090372	4× 0.133	1000	0 3 7 10 14	Fruit Fruit Fruit Fruit Fruit	0.33 0.26 0.35 0.23 0.20	0.03 0.02 0.03 0.02 0.02	0.36 0.28 0.38 0.25 0.25	Dantas, Cardoso 2013 374970 2013/7005693
Brazil 2011 Conchal / SP G090373	4× 0.133	1000	7	Fruit	0.16	0.03	0.19	Dantas, Cardoso 2013 374970 2013/7005693
Brazil 2010 Jaboticabal / SP G090374	4× 0.133	1000	7	Fruit	0.14	0.01	0.15	Dantas, Cardoso 2013 374970 2013/7005693
Brazil 2016/17 Petrolina / PE G160246	4× 0.133	1000	0 0 3 3 7 7 14 14	Pulp & peel Fruit Pulp & peel Fruit Pulp & peel Fruit Pulp & peel Fruit	0.073 0.057 0.067 0.052 0.040 0.035 0.029 0.025	<0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	0.083 0.067 0.077 0.062 0.050 0.045 0.039 0.035	Teixeira 2017 819289 2017/3002801
Brazil 2016/17 Lagoa Grande / PE G160247	4× 0.133	1000	7 7	Pulp & peel Fruit	0.093 0.078	0.022 0.018	0.115 0.098	Teixeira 2017 819289 2017/3002801

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

_ underlined values were used for MRL calculation

Papaya

The intended critical use of pyraclostrobin is 4 foliar applications of 0.133 kg as/ha for papaya. The PHI is 7 days.

In 2010 and 2011, a total of four field trials in Brazil were conducted in papaya to determine the magnitude at harvest and decline of pyraclostrobin residues (BAS 500 F) (DocID 2013/3006542). The formulation BAS 703 02 F (SC, 333 g/L pyraclostrobin and 167 g/L BAS 700 F) was foliar applied three times in trials G100015 and G100016 and once in trials G100017 and G100018 at a rate of 0.100 kg ai/ha pyraclostrobin in a spray volume of 1000 L/ha using Backpack spraying equipment pressurised with carbonic gas. There was no use of adjuvant. The interval between applications was 7 days. Samples of papaya fruit were collected at 7 days after the last application (DALA). The minimum amounts of collected samples were 12 fruits and 2 kg of papaya (fruits). All samples were frozen and packed in separate plastic bags, identified, labelled and properly stored in the cold chamber (operational temperature of -20 °C or lower).

Residues of pyraclostrobin and its metabolite in papaya samples were quantitated by LC/MS/MS using methods 535/1. The limit of quantitation (LOQ) of the methods is 0.01 mg/kg for all analytes.

The efficiency of the method 535/1 was determined by fortifying control samples in the level of LOQ and 100×LOQ with standard solutions of pyraclostrobin and 500M07. The results of procedural recovery experiments in papaya samples averaged 83% for pyraclostrobin and 88% for 500M07.

Table 48 Results of residue trials with BAS 703 02 F (SC) conducted in papaya (according to critical GAP), foliar application

Country Year Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg][b]	Author Report Year Study No. DocID.
	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP: 4 × 0.133, PHI 7days								
Brazil 2011 Linhares / ES G100015	4× 0.100	1000	0 7 14	Fruit Fruit Fruit	0.28 0.20 0.14	0.02 0.02 0.02	0.30 0.22 0.16	Jones 2013 381043 2013/3006542
Brazil 2011 Sooretama / ES G100016	4× 0.100	1000	0 7 14	Fruit Fruit Fruit	0.48 0.22 0.15	0.03 0.02 0.02	0.51 0.24 0.17	Jones 2013 381043 2013/3006542
Brazil 2011 Pinheiros / ES G100017	4× 0.100	1000	7	Fruit	0.10	0.03	0.13	Jones 2013 381043 2013/3006542
Brazil 2011 Bela Vista so Paraíso / PR G100018	4× 0.100	1000	7	Fruit	0.02	<0.01	<0.03	Jones 2013 381043 2013/3006542

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

_ underlined values were used for MRL calculation.

Assorted tropical and sub-tropical fruits – inedible rough or hairy peel – large (subgroup 006C)

Pineapple

The critical use of pyraclostrobin pineapple as supported by field residue data consists of maximum 4 foliar applications of 0.15 kg ai/ha each. The PHI is 3 days.

In 2013–2014, four field trials in Brazil were conducted in pineapple to determine the magnitude at harvest and the decline of the residues of pyraclostrobin (DocID 2014/3018992). The formulation BAS 518 01 F (WG, 50 g/kg pyraclostrobin and 550 g/kg metiram) was foliar applied four times at a rate of 0.150 kg ai/ha pyraclostrobin in a spray volume of 200 L/ha with an interval of 7 days between applications using Boom sprayer. There was no use of adjuvant. For the decline trials, samples of pineapple were collected at 0, 3 and 7 days after last application (DALA). In the harvest trials, fruit samples were taken at 3 DALA. Each field specimen was taken from at least 12 different plants distributed over the plot. No specimens were taken from the outer plants of the plots. Control specimens were taken before treated specimens. The pineapple samples from all trials at 3 DALA, were divided in peel and pulp.

In 2010–2011, five field trials in Brazil were conducted in pineapple to determine the magnitude at harvest and the decline of the residues of pyraclostrobin (BAS 500 F) (DocIDs 2012/3007541, 2012/3002165 and 2015/3006421). The formulation BAS 518 01 F (WG, 50 g/kg pyraclostrobin and 550 g/kg metiram) was foliar applied four times at a rate of 0.150 kg ai/ha pyraclostrobin in a spray volume of 200 L/ha with an interval of 7 days between applications. There was no use of adjuvant. For the decline trials, three treated samples of pineapple were collected at 0, 3 and 7 days after last application (DALA). In the pre-harvest trials, one fruit sample was taken at 3 DALA.

The method used for the determination of residues of Pyraclostrobin and its metabolite 500M07 was the BASF Method Number 535/1 (L0076/01). The residues were determined by liquid chromatography, mass / mass detector (LC/MS/MS) with external standardisation. The sensitivity validated (LOQ) was 0.01 mg/kg. The efficiency of the method was determined by fortifying control samples in the level of 0.01 and 1.0 mg/kg with standard solutions of pyraclostrobin and 500M07. The results of procedural recovery experiments in pineapple samples averaged 74.9% for pyraclostrobin and 80.9% for 500M07.

Residues of pyraclostrobin and its metabolite 500M07 are stable under frozen storage conditions in/on fortified samples of pineapple for a period of 25 months from the harvest date, according to the Stability Study 66414 (Doc ID 2001/5000232).

Table 49 Results of residue trials with BAS 518 01 F (WG) conducted in pineapple (according to critical GAP), foliar application

Country Year Location (variety) Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg][b]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP: 4 × 0.15 kg ai/ha, PHI=3 days								
Brazil 2014 Bauru / SP (Havaí) G130189	4× 0.150	200	0 3 3 3 7	Whole fruit Whole fruit Pulp Peel Whole fruit	0.027 <0.01 <0.002 0.029 0.021	<0.01 <0.002 <0.002 <0.01 <0.01	<0.037 <0.012 <0.004 <0.039 <0.031	Guimarães 2014 709929 2014/3018992
Brazil 2014 Tabatinga / SP (Havaí) G130190	4× 0.150	200	0 3 3 3 7	Whole fruit Whole fruit Pulp Peel Whole fruit	0.066 0.048 <0.002 0.059 0.032	<0.01 <0.01 <0.002 <0.01 <0.01	<0.076 <0.058 <0.004 <0.069 <0.042	Guimarães 2014 709929 2014/3018992
Brazil 2014 Frutal / MG (Pérola) G130191	4x 0.150	200	3 3 3	Whole fruit Pulp Peel	0.030 <0.002 0.046	<0.01* <0.002 <0.01	<0.040 <0.004 <0.056	Guimarães 2014 709929 2014/3018992
Brazil 2014 Frutal / MG (Havaí) G130192	4× 0.150	200	3 3 3	Whole fruit Pulp Peel	0.069* <0.002 0.230*	<0.01 <0.002 0.017	<0.079 <0.012 0.250	Guimarães 2014 709929 2014/3018992
Brazil 2011 Itápolis / SP (Havaí) G100391	4× 0.150	200	0 3 7	Fruit Fruit Fruit	0.070 0.020 0.020	<0.01 <0.01 <0.01	<0.08 <0.03 <0.03	Guimarães 2012 374866 2012/3007541
Brazil 2011 Tabatinga / SP (Havaí) G100392	4× 0.150	200	0 3 7	Fruit Fruit Fruit	0.100 0.070 0.030	<0.01 <0.01 <0.01	<0.11 <0.08 <0.04	Guimarães 2012 374866 2012/3007541
Brazil 2011 Itaberaba / BA (Pérola) G100393	4× 0.150	200	3	Fruit	0.040	<0.01	<0.05	Guimarães 2012 374866 2012/3007541
Brazil 2011 Vazante / BA (Pérola) G100394	4× 0.150	200	3	Fruit	0.090	<0.01	<0.10	Guimarães 2012 374866 2012/3007541
Brazil 2011 Trancoso / BA (Pérola) G100715	4× 0.150	200	3	Fruit	0.190	<0.01	0.200	Guimarães 2012 374866 2012/3007541

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

* mean of results

_ underlined values were used for MRL calculation.

Passion fruit

The intended critical use of pyraclostrobin in passion fruit as supported by field residue data consists of maximum 4 foliar applications of 0.15 kg ai/ha each. The PHI is 7 days.

In 2011, four field trials in Brazil were conducted in passion fruit to determine the magnitude at harvest and the decline of the residues of pyraclostrobin (BAS 500 F) (DocIDs 2012/3006802 and 2012/3002164). The study consisted of one treated plot for harvest trials and three treated plots for degradation curve trials. The formulation BAS 518 01 F (WG, 50 g/kg pyraclostrobin and 550 g/kg BAS 220 F) was foliar applied at a rate of 0.150 kg ai/ha pyraclostrobin in a spray volume of 1000 L/ha. There was no use of adjuvant. Application timings were 28, 21, 14 and 7 days before harvest (DBH). For the degradation curve trials, samples of passion fruit (Minimum quantity of 12 fruits and 2 kg) were collected at 0, 7 and 14 days after last application (DALA). In the harvest trials, fruit samples were taken at 7 DALA. The method used for the determination of residues of pyraclostrobin and its metabolite 500M07 was the BASF Method Number 535/1 (L0076/01). The residues were determined by liquid chromatography, mass / mass detector (LC/MS/MS) with external standardisation. The sensitivity validated (LOQ) was 0.01 mg/kg. The efficiency of the method was determined by fortifying control samples in the level of 0.01 and 1.0 mg/kg with standard solutions of pyraclostrobin and 500M07. The results of procedural recovery experiments in pineapple samples averaged 81% for pyraclostrobin and 86% for 500M07.

The storage stability of passion fruit samples for analysis of pyraclostrobin and its metabolite is 25 months from the date of harvest, according to Stability Study BASF Study Number 66414 (BASF DocID 2001/5000232).

Table 50 Results of residue trials with BAS 518 01 F (WG) conducted in passion fruit (according to critical GAP), foliar application

Country Year Location Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg][b]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP: 4 × 0.15 kg ai/ha, PHI=7 days								
Brazil 2011 Mogi Mirim / SP G100395	4× 0.150	1000	0 7 14	Fruit Fruit Fruit	0.21 0.04 0.04	<0.01 <0.01 <0.01	<0.22 <0.05 <0.05	Guimarães 2012 374864 2012/3006802 2012/3002164
Brazil 2011 Corumbataí / SP G100396	4× 0.150	1000	0 7 14	Fruit Fruit Fruit	0.04 0.03 0.02	<0.01 <0.01 <0.01	0.05 0.04 0.03	Guimarães 2012 374864 2012/3006802 2012/3002164
Brazil 2011 Taquaritinga / SP G100397	4× 0.150	1000	7	Fruit	0.10	<0.01	<0.11	Guimarães 2012 374864 2012/3006802 2012/3002164
Brazil 2011 Juazeiro / BA G100398	4× 0.150	1000	7	Fruit	0.05	<0.01	<0.06	Guimarães 2012 374864 2012/3006802 2012/3002164

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

_ underlined values were used for MRL calculation

Leafy Vegetables (including Brassica Leafy Vegetables)

Spinach

The intended use of pyraclostrobin in spinach as supported by field residue data consists of maximum 2 foliar applications of 0.1 kg ai/ha each (total maximum seasonal application of 0.2 kg ai/ha). The PHI is 14 days.

During the 2005 growing season, one field trial in spinach was conducted in Germany to determine the residue level of pyraclostrobin (BAS 500 F) (DocID 2006/1015882). The WG formulation BAS 516 00 F (6.7% pyraclostrobin and 26.7% boscalid) was foliar applied in spinach two times at single rates of 0.100 kg ai/ha for pyraclostrobin in spray volumes of 300 L/ha. Spinach specimens were collected 14 and 21 DALA.

During the 2004 growing season, four field trials in spinach were conducted in Germany to determine the residue level of pyraclostrobin (BAS 500 F) (DocID 2005/1026058, 2005/1029625 and 2005/1036094). The WG formulation BAS 516 00 F (67 g/kg

pyraclostrobin and 267 g/kg boscalid) was foliar applied in spinach two times at single rates of 0.100 kg ai/ha for pyraclostrobin in spray volumes of 400 L/ha. Spinach specimens were collected 0, 7, 10, 14 and 21 DALA.

The samples were analysed with BASF method no. 445/0 which quantifies the residues of pyraclostrobin and its metabolite 500M07. The limit of quantitation was 0.02 mg/kg each for pyraclostrobin and its metabolite 500M07 in all sample materials.

During the 2010 growing season, four field trials in spinach were conducted in Northern and Southern France, Germany and Italy to determine the residue levels of pyraclostrobin (BAS 500 F) (DocID 2011/1125587). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was foliar applied twice to spinach at single rates of 0.100 kg ai/ha for pyraclostrobin in a spray volume of 400 L/ha. Application timings were 21±1 and 14±1 days before harvest. Samples of whole plants without roots were taken directly after the last application (0 DALA), samples of spinach leaves at 7±1, at 14±1 and at 21±1 DALA.

During the 2009 growing season, four field trials in spinach were conducted in Northern and Southern France, Germany and Italy to determine the residue levels of pyraclostrobin (BAS 500 F) (DocID 2010/1071192). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was foliar applied twice to spinach at single rates of 0.100 kg ai/ha for pyraclostrobin in a spray volume of 200 L/ha. The application was made using commercial equipment. The application included no adjuvant. Application timings were 21±1 and 14±1 days before harvest. Samples of whole plants without roots (minimum 0.5 kg/12 plant) were taken directly after the last application (0 DALA), samples of spinach leaves (approximatly 2 kg) at 7, 14±1 as well 21±1 DALA.

The method used for the determination of residues of pyraclostrobin and its metabolite 500M07 was the BASF Method Number 535/1 (L0076/01). The sensitivity validated (LOQ) was 0.01 mg/kg. The efficiency of the method was determined by fortifying control samples in the level of 0.01, 0.1 and 10 mg/kg (leaves and whole plant) with standard solutions of pyraclostrobin and 500M07. The results of procedural recovery experiments in spinch leaves samples averaged 92.4% for pyraclostrobin and 92.4% for 500M07. The results of procedural recovery experiments in whole plant samples averaged 87.3% for pyraclostrobin and 89.2% for 500M07. The maximum storage interval from harvest until start of analysis was 347 days.

Table 51 Results of residue trials with pyraclostrobin conducted in spinach, foliar application

Country Year Location (variety) Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
	Rate [kg as / ha]	Rate [kg as / ha]						
cGAP:2 × 0.101, PHI 14								
Germany 2005 15328 Neu Tucheband RU-F-1405 BBFO 1/1	2× 0.100	300	14 21	leaves leaves	0.308 0.174	<0.02 <0.02	0.328 0.194	Weber 2006 236119 2006/1015882
Germany 2004 12347 Berlin (Gamma) RU-F-17-04 BEB 1/1	2× 0.100	400	0 7 10 14 21	leaves leaves leaves leaves leaves	0.805 0.228 0.049 0.054 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02	0.825 0.248 0.069 0.074 <0.04	Velt, Weber 2005 212000 2005/1026058 2005/1029625 2005/1036094
Germany 2004 12347 Berlin (Gamma) RU-F-17-04 BEB 1/2	2× 0.100	400	0 7 10 14 21	leaves leaves leaves leaves leaves	38.023 0.184 0.118 0.130 0.032	<0.02 <0.02 <0.02 <0.02 <0.02	38.043 0.204 0.138 0.150 0.052	Velt, Weber 2005 212000 2005/1026058 2005/1029625 2005/1036094
Germany 2004 12347 Berlin (Gamma) RU-F-17-04 BEB 1/3	2× 0.100	400	0 7 10 14 21	leaves leaves leaves leaves leaves	2.869 0.101 0.045 0.021 <0.02	<0.02 <0.02 <0.02 <0.02 <0.02	2.889 0.121 0.065 0.041 <0.04	Velt, Weber 2005 212000 2005/1026058 2005/1029625 2005/1036094

Country Year Location (variety) Trial No.	Application Rate [kg as / ha]	 Rate [kg as / ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
Germany 2004 12347 Berlin (Gamma) RU-F-17-04 BEB 1/4	2× 0.100	400	0 7 10 14 21	leaves leaves leaves leaves leaves	1.854 0.179 0.045 0.035 0.031	<0.02 <0.02 <0.02 <0.02 <0.02	1.874 0.199 0.065 0.055 0.051	Velt, Weber 2005 212000 2005/1026058 2005/1029625 2005/1036094
Germany (N) 2010 49429 Visbek (Emu) L100567	2× 0.100	400	0 8 15 21	whole plant [c] leaves leaves leaves	2.6 0.62 0.13 0.070	0.068 0.034 <0.010 <0.010	2.668 0.654 0.131 0.080	Hauck 2011 309344 2011/1125587
France (N) 2010 60420 Maignelay -Montigny (Aigle) L100333	2× 0.100	400	0 7 14 21	whole plant [c] leaves leaves leaves	3.7 0.013 <0.01 <0.01	0.016 <0.01 <0.01 <0.01	3.7 0.023 <0.02 <0.02	Hauck 2011 309344 2011/1125587
Italy (S) 2010 48100 Ravenna (Marabu) L100334	2× 0.100	400	0 7 14 21	whole plant [c] leaves leaves leaves	4.6 0.64 0.91 0.027	0.028 0.066 <0.01 <0.01	4.7 0.70 0.100 0.037	Hauck 2011 309344 2011/1125587
France (S) 2010 47190 Aiguillon (Pelican) L100335	2× 0.100	400	0 7 13 21	whole plant [c] leaves leaves leaves	2.9 0.17 0.046 0.025	0.017 0.010 <0.01 <0.01	2.917 0.18 0.06 0.04	Hauck 2011 309344 2011/1125587
Germany (N) 2009 49692 Cappeln (Ibiza) L090135	2× 0.100	200	0 7 14 22	whole plant [c] leaves leaves leaves	5.50 0.29 0.02 <0.01	0.09 0.03 <0.01 <0.01	5.59 0.32 0.03 <0.02	Schulz, Ziske 2010 309343 2010/1071192
France (N) 2009 60420 Maignelay -Montigny (Aigle) L090136	2× 0.100	200	0 7 15 21	whole plant [c] leaves leaves leaves	2.08 0.44 0.27 0.28	0.01 0.02 0.01 0.01	2.09 0.48 0.28 0.29	Schulz, Ziske 2010 309343 2010/1071192
Italy (S) 2009 48100 Ravenna (Marabu) L090137	2× 0.100	200	0 7 14 21	whole plant [c] leaves leaves leaves	2.75 0.28 0.04 0.05	0.02 0.03 <0.01 <0.01	2.77 0.31 0.05 0.06	Schulz, Ziske 2010 309343 2010/1071192
France (S)	2×	200	0	whole plant [c]	1.42	0.01	1.43	Schulz, Ziske

Country Year Location (variety) Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
	Rate [kg as / ha]	Rate [kg as / ha]						
2009	0.100		7	leaves	0.10	0.02	0.12	2010
33220 St Avit St Nazaire (Veneto) L090138			13	leaves	0.02	<0.01	0.03	309343
			21	leaves	<0.01	<0.01	<0.02	2010/1071192

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

[c] no roots

_ underlined values were used for MRL calculation

Witloof chicory (leaves / sprouts)

The intended critical use of pyraclostrobin in the production of witloof chicory sprouts consists of one application of 0.42 g as/m2 of pyraclostrobin. The PHI is 21 days.

During the 2009, 2010/11 growing seasons, four residue trials were conducted at a representative commercial chicory forcing facility in Northern France to determine the magnitude of residues of pyraclostrobin WG formulation in witloof chicory (DocID 2010/1062613; DocID 2011/1149993). In the supervised residue trials, the spray application was combined with a dipping application prior to root storage followed, 7 to 11 days later, by a spraying application of the roots placed in forcing trays shortly before forcing with leaves collected after 21 days.

Commercially harvested chicory roots were used for each trial. Treated roots received a dip application (concentration of dipping solution: 0.010 kg as/hL) using a large bucket and a 20 L solution of WG comericial formulation After dipping the roots were allowed to dry at amibient temperature and then placed into labelled plastic bags. After vernalisation, the roots were removed from the refrigerated room and placed into commercial trays (2 trays per treatment). Each tray had been thoroughly cleaned, disinfected and labelled. The trays were then loaded onto separate specially designed shelving units and BAS 516 07 F was applied by spraying to roots at a rate of 0.42 g as/m2 of pyraclostrobin in a spray volume of 5.0 L/m2 using a single nozzle sprayer. The treated and untreated tray was transferred to a forcing chamber where hydroponic equipment was installed the following day.

Speciments of chicory roots (0.5 kg/12 units) and leaves (≥0.5 kg) were collected 15, 21 and 28 days after last application.

All specimens were analysed for pyraclostrobin and its metabolite 500M07 using BASF Method no. L0076/01. The method has an LOQ of 0.01 mg/kg. The efficiency of the method was determined by fortifying control samples in the level of 0.01, 0.1 and 10 mg/kg with standard solutions of Pyraclostrobin and 500M07. The results of overall procedural recovery experiments in root and leaf samples averaged 98.9% for pyraclostrobin and 90% for 500M07. The maximum storage interval from harvest until start of analysis was 130 days.

Table 52 Results of residue trials with pyraclostrobin conducted in witloof chicory (according to critical GAP), foliar application

CROP Country, Year Location (variety) Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
	Rate [g as/m2]	Spray volume [L/m^2]						
cGAP: 1 × 0.42 g ai/m2, PHI 21 days								
France (N)	n.a.	n.a.	0	Roots w/o leaves	1.900	<0.01	1.900	Oxspring
2010/11			15	Roots	1.700	<0.01	1.700	2011
62000 Arras	0.42	5	15	Leaves	0.062	<0.01	0.072	309353
(Atlas)	g as	L/m^2	21	Roots	1.800	<0.01	1.900	2011/
L100390	/m2		21	Leaves	0.020	<0.01	0.030	1149993
			28	Roots	1.700	<0.01	1.700	
			28	Leaves	0.013	<0.01	0.023	
France (N)	n.a.	n.a.	0	Roots w/o leaves	1.700	<0.01	1.700	Oxspring
2010/11			15	Roots	1.500	<0.01	1.500	2011
62000 Arras	0.42	5	15	Leaves	0.043	<0.01	0.053	309353
(Ecrine)	g as	L/m^2	21	Roots	1.400	0.010	1.400	2011/

CROP Country, Year Location (variety) Trial No.	Application Rate [g as/m2]	 Spray volume [L/m^2]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
L100391	/m2		21	Leaves	0.027	<0.01	0.037	1149993
			28	Roots	1.500	0.029	1.500	
			28	Leaves	0.021	<0.01	0.031	
France (N)	n.a.	n.a.	0	Roots w/o leaves	3.530	<0.01	3.540	Oxspring
2010/11			14	Roots	2.860	0.040	2.900	2010
62000 Arras	0.42	5	14	Leaves	0.160	<0.01	0.170	309352
(Metafora)	g as	L/m^2	21	Roots	3.310	0.140	3.450	2011/
L090262	/m2		21	Leaves	0.030	<0.01	0.040	1149993
			28	Roots	2.680	0.340	3.020	
			28	Leaves	<0.01	<0.01	<0.02	
France (N)	n.a.	n.a.	0	Roots w/o leaves	3.670	<0.01	3.680	Oxspring
2010/11			14	Roots	2.950	0.030	2.980	2010
62000 Arras	0.42	5	14	Leaves	0.090	<0.01	0.100	309352
(Ecrine)	g as	L/m^2	21	Roots	3.280	0.050	3.330	2011/
L090263	/m2		21	Leaves	0.040	<0.01	0.050	1149993
			28	Roots	2.910	0.170	3.080	
			28	Leaves	0.020	<0.01	0.030	

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

n.a. = not applicable

_ underlined values were used for MRL calculation

Legume vegetables

Beans with pods and peas with pods (subgroup 014A and 014B)

The intended critical uses of pyraclostrobin (BAS 500 F) in beans and peas with pods as supported by field residue data consists of maximum 2 foliar applications of 0.1–0.12 kg ai/ha each (total maximum seasonal application of 0.200–0.240 kg as/ha). The PHI is 7 days.

Green beans with pods

During the 2010 growing season, five field trials in green bean were conducted in Southern France, Germany, Greece, Italy and Spain to determine the residue levels of pyraclostrobin (BAS 500 F) (DocIDs 2011/1135971 and 2011/1173942). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was applied two times at single rates of 0.100 kg ai/ha for pyraclostrobin in a spray volume of 400 L/ha for trials L100423 – L100426. In trial L100591, the spray volume was 150 L/ha. The application was made using commercial equipment. No adjuvant was used. Application timings were 14 and 7–8 days before harvest (DBH). Samples (1 kg /24 pieces for pods with seeds, 1 kg/12 plants for rest of plant, 0.2 kg for seeds) were taken directly after the last application (0 DALA), at 2–3, 7–8 and 13–15 DALA.

During the 2010 growing season, eight field trials in green bean were conducted in Belgium, Northern and Southern France, Germany, Greece, Italy, the Netherlands and Spain to determine the residue levels of pyraclostrobin (BAS 500 F) (DocID 2010/1109477). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was applied two times at single rates of 0.1206 kg ai/ha in a spray volume of 150–180 L/ha for trials L090139–L090142. In trials L090143–L090146, the spray volume was 100 L/ha with a rate of 0.1005 kg ai/ha. The application was made using commercial equipment. No adjuvant was used. Application timings were 13–14 and 6–8 days before harvest (DBH). Samples (1 kg /24 pieces for pods with seeds, 1 kg/12 plants for rest of plant, 0.2 kg for seeds) were taken directly after the last application (0 DALA, BBCH 75–83) and at 2–3 (BBCH 77–86), 6–8 (BBCH 78–89) and 13–14 (BBCH 79–89) DALA.

During the 2010 growing season, four field trials in green bean were conducted in Northern France, Germany, the Netherlands and the United Kingdom to determine the residue levels of pyraclostrobin (BAS 500 F) (DocID 2008/1028267). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was applied two times at single rates of 0.120 kg ai/ha in a spray volume of 150 L/ha for trials L070852 and L070853, and 300 L/ha for trials L070854 and L070855. The application was made using commercial equipment. No adjuvant was used. Application timings were 13–15 and 7 days before harvest (DBH). Samples of (0.5 kg /24 pieces for beans with pods, 0.5 kg/12 plants for rest of plant) were taken directly after the last application (0 DALA, BBCH 75–83), at 2–4 (BBCH 76–84), 7 (BBCH 78–88) and 13–15 (BBCH 79–88) DALA.

During the 2011 growing season, two field trials in green bean were conducted in Spain to determine the residue levels of pyraclostrobin (BAS 500 F) (DocID 2012/1171748). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was applied two times at single rates of 0.100 kg ai/ha in a spray volume of 400 L/ha. The application was made using commercial equipment. No adjuvant was used. Application timings were 13–14 and 7 days before harvest (DBH). Samples (1 kg /24 pieces for pods with seeds, 1 kg/12 plants for rest of plant, 0.2 kg for seeds) were taken directly after the last application (0 DALA, BBCH 77–80), as well as at 3 (BBCH 80–85), 7 (BBCH 80–89) and 14 (BBCH 80–89) DALA.

All specimens were analysed for pyraclostrobin and its metabolite 500M07 using BASF method no. 535/1 or BASF method no. 0076/01. The methods has an LOQ of 0.01 mg/kg. The efficiency of the method was determined by fortifying control samples (pods with seeds, rest of plant, pods without seeds, and seeds) in the level of 0.01, 0.1 and 10 mg/kg with standard solutions of pyraclostrobin and 500M07. The results of overall procedural recovery experiments in samples averaged 99.9% for pyraclostrobin and 91.3% for 500M07. The maximum storage interval from harvest until start of analysis was 273 days.

Table 54 Results of residue trials with pyraclostrobin conducted in common bean (according to critical GAP)

Country Year Location (variety) Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP: 2 x 0 .1, PHI 7days								
France (S) 2010 47250 Bougnon L100423	2× 0.100	400	0 0 3 3 7 7	Pods with seeds Rest of plant Pods with seeds Rest of plant Pods w/o seeds Seeds	0.170 4.200 0.110 2.600 0.080 <0.01	<0.01 0.060 <0.01 0.200 <0.01 <0.01	0.180 4.200 0.120 2.800 0.090 <0.02	Meyer 2011 309370 2011/1135971
Greece 2010 57500 Epanomi L100424	2× 0.100	400	0 0 3 3 7 7 7 7 15 15 15 15	Pods with seeds Rest of plant Pods with seeds Rest of plant Pods with seeds Rest of plant Pods w/o seeds Seeds Pods with seeds Rest of plant Pods w/o seeds Seeds	0.210 6.200 0.110 2.000 0.055 0.850 0.072 <0.01 0.021 0.480 0.037 <0.01	<0.01 0.070 <0.01 0.160 <0.01 0.089 0.013 <0.01 <0.01 0.056 <0.01 <0.01	0.220 6.300 0.120 2.200 0.065 0.940 0.085 <0.02 0.031 0.540 0.047 <0.02	Meyer 2011 309370 2011/1135971
Italy 2010 40047 Granarolo dell'Emilia L100425	2× 0.100	400	0 0 3 3 7 7 7 7 14 14 14 14	Pods with seeds Rest of plant Pods with seeds Rest of plant Pods with seeds Rest of plant Pods w/o seeds Seeds Pods with seeds Rest of plant Pods w/o seeds Seeds	0.370 5.700 0.270 4.900 0.240 3.900 0.280 <0.01 0.220 2.500 0.240 0.018	0.011 0.370 0.014 0.460 0.020 0.510 0.022 <0.01 0.027 0.400 0.025 <0.01	0.380 6.100 0.280 5.400 0.260 4.400 0.300 <0.02 0.250 2.900 0.260 0.028	Meyer 2011 309370 2011/1135971
Spain 2010 29001 Malaga L100426	2× 0.100	400	0 0 3 3 7 7 14 14	Pods with seeds Rest of plant Pods with seeds Rest of plant Pods with seeds Rest of plant Pods with seeds Rest of plant	0.240 3.300 0.170 4.200 0.210 3.900 <0.01 <0.01	<0.01 0.081 <0.01 0.320 0.013 0.410 <0.01 <0.01	0.250 3.400 0.180 4.500 0.230 4.300 <0.02 <0.02	Meyer 2011 309370 2011/1135971
Germany 2010	1× 0.378*	150	0 0	Pods with seeds Rest of plant	0.170 6.000	<0.01 0.080	0.180 6.100	Meyer 2011

Country Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2 x 0 .1, PHI 7days								
68623	1×		2	Pods with seeds	0.190	<0.01	0.200	309370
Lampertheim	0.396*		2	Rest of plant	3.300	0.140	3.400	2011/1135971
L100591			8	Pods with seeds	0.066	<0.01	0.076	
			8	Rest of plant	1.400	0.100	1.500	
			13	Pods with seeds	0.062	<0.01	0.072	
			13	Rest of plant	1.300	0.200	1.500	
			13	Pods w/o seeds	0.067	<0.010	0.077	
			13	Seeds	<0.01	<0.01	<0.02	
Germany	2×	180	0	Pods with seeds	0.320	0.010	0.330	Schulz, Ziske
2010	0.1432*		0	Rest of plant	5.100	0.120	5.220	2010
67245			3	Pods with seeds	0.060	0.010	0.070	309351
Lambsheim			3	Rest of plant	0.440	0.030	0.470	2010/1109477
L090139			7	Pods with seeds	0.030	<0.01	0.040	
			7	Rest of plant	0.160	0.020	0.180	
			7	Pods w/o seeds	0.020	<0.01	0.030	
			7	Seeds	<0.01	<0.01	0.020	
			14	Pods with seeds	0.010	<0.01	0.020	
			14	Rest of plant	<0.01	<0.01	0.020	
			14	Pods w/o seeds	0.010	<0.01	0.020	
			14	Seeds	<0.01	<0.01	0.020	
The	2×	150	0	Pods with seeds	0.190	0.010	0.200	Schulz, Ziske
Netherlands	0.1206		0	Rest of plant	6.300	0.290	6.590	2010
2010			3	Pods with seeds	0.220	0.010	0.230	309351
8255 RE			3	Rest of plant	4.960	0.400	5.360	2010/1109477
Swifterbant			6	Pods with seeds	0.240	0.020	0.260	
L090140			6	Rest of plant	3.540	0.430	3.970	
			6	Pods w/o seeds	0.150	0.010	0.160	
			6	Seeds	0.010	<0.01	0.020	
			13	Pods with seeds	0.190	0.020	0.210	
			13	Rest of plant	1.440	0.270	1.710	
			13	Pods w/o seeds	0.190	0.020	0.210	
			13	Seeds	0.010	<0.01	0.020	
France (N)	2×	150	0	Pods with seeds	0.790	0.040	0.830	Schulz, Ziske
2010	0.1206		0	Rest of plant	8.700	0.250	8.950	2010
72250			3	Pods with seeds	0.680	0.090	0.770	309351
Parigne			3	Rest of plant	3.570	0.420	3.990	2010/1109477
l'Eveque			7	Pods with seeds	0.260	0.070	0.330	
L090141			7	Rest of plant	2.500	0.310	2.810	
			7	Pods w/o seeds	1.570	0.340	1.910	
			7	Seeds	0.270	0.020	0.290	
			14	Pods with seeds	0.220	0.090	0.310	
			14	Rest of plant	1.560	0.240	1.800	
			14	Pods w/o seeds	0.880	0.330	1.210	
			14	Seeds	0.040	<0.01	0.050	
Belgium	2×	150	0	Pods with seeds	0.300	0.010	0.310	Schulz, Ziske
2010	0.0804		0	Rest of plant	6.550	0.180	6.730	2010
6280			3	Pods with seeds	0.200	0.010	0.210	309351
Gerpinnes			3	Rest of plant	3.160	0.210	3.370	2010/1109477
L090142			6	Pods with seeds	0.130	0.010	0.140	
			6	Rest of plant	1.630	0.210	1.840	
			6	Pods w/o seeds	0.180	0.020	0.200	
			6	Seeds	0.020	<0.01	0.030	
			13	Pods with seeds	0.050	0.010	0.060	
			13	Rest of plant	0.410	0.110	0.520	
			13	Pods w/o seeds	0.090	0.020	0.110	

Country Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2 x 0 .1, PHI 7days								
			13	Seeds	0.010	<0.01	0.020	
France (S)	2×	100	0	Pods with seeds	0.280	0.010	0.290	Schulz, Ziske
2010	0.1005		0	Rest of plant	6.700	0.250	6.950	2010
47120 Duras			2	Pods with seeds	0.110	0.010	0.120	309351
L090143			2	Rest of plant	1.170	0.120	1.290	2010/1109477
			8	Pods with seeds	0.030	0.010	0.040	
			8	Rest of plant	0.210	0.040	0.250	
			8	Pods w/o seeds	0.060	0.010	0.070	
			8	Seeds	<0.01	<0.01	0.020	
			14	Pods with seeds	0.010	<0.01	0.020	
			14	Rest of plant	0.040	0.020	0.060	
			14	Pods w/o seeds	0.010	<0.01	0.020	
			14	Seeds	<0.01	<0.01	0.020	
Greece	2×	100	0	Pods with seeds	0.120	<0.01	0.130	Schulz, Ziske
2010	0.1206		0	Rest of plant	6.100	0.100	6.200	2010
57500			3	Pods with seeds	0.060	<0.01	0.070	309351
Epanomi			3	Rest of plant	1.980	0.100	2.080	2010/1109477
L090144			7	Pods with seeds	0.030	<0.01	0.040	
			7	Rest of plant	0.920	0.080	1.000	
			7	Pods w/o seeds	0.070	<0.01	0.080	
			7	Seeds	<0.01	<0.01	0.020	
			14	Pods with seeds	0.010	<0.01	0.020	
			14	Rest of plant	0.230	0.040	0.270	
			14	Pods w/o seeds	0.020	<0.01	0.030	
			14	Seeds	<0.01	<0.01	0.020	
Italy	2×	150	0	Pods with seeds	0.160	<0.01	0.170	Schulz, Ziske
2010	0.1206		0	Rest of plant	5.500	0.040	5.540	2010
48010			3	Pods with seeds	0.080	0.010	0.090	309351
Barbiano			3	Rest of plant	0.840	0.080	0.920	2010/1109477
di Cotignola			7	Pods with seeds	0.040	<0.01	0.050	
L090145			7	Rest of plant	0.280	0.030	0.310	
			7	Pods w/o seeds	0.030	0.010	0.040	
			7	Seeds	0.010	<0.01	0.020	
			14	Pods with seeds	0.010	<0.01	0.020	
			14	Rest of plant	0.070	0.020	0.090	
			14	Pods w/o seeds	0.020	<0.01	0.030	
			14	Seeds	<0.01	<0.01	0.020	
Spain	2×	150	0	Pods with seeds	0.490	0.020	0.510	Schulz, Ziske
2010	0.1206		0	Rest of plant	9.500	0.520	10.020	2010
29001			3	Pods with seeds	0.350	0.020	0.370	309351
Málaga			3	Rest of plant	5.950	0.390	6.340	2010/1109477
L090146			7	Pods with seeds	0.280	0.020	0.300	
			7	Rest of plant	8.450	0.730	9.180	
			7	Pods w/o seeds	3.640	0.270	3.910	
			7	Seeds	<0.01	<0.01	0.020	
			14	Pods with seeds	0.010	<0.01	0.020	
			14	Rest of plant	1.550	0.220	1.770	
			14	Pods w/o seeds	2.270	0.260	2.530	
			14	Seeds	<0.01	<0.01	0.020	
The	2×	150	0	Beans with pods	0.130	<0.01	0.140	Klaas, Ziske
Netherlands	0.120		0	Rest of plant	3.000	0.030	3.030	2009
2007			3	Beans with pods	0.050	<0.01	0.060	309369
8255 RE			3	Rest of plant	0.890	0.050	0.940	2008/1028267
Swifterbant			7	Beans with pods	0.030	<0.01	0.040	

Country Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2 x 0 .1, PHI 7days								
L070852			7	Rest of plant	0.440	0.040	0.480	
			15	Beans with pods	0.010	<0.01	0.020	
			15	Rest of plant	0.230	0.030	0.260	
France (N)	2×	150	0	Beans with pods	0.300	<0.01	0.310	Klaas, Ziske
2007	0.120		0	Rest of plant	9.970	0.150	10.120	2009
80400			3	Beans with pods	0.090	<0.01	0.100	309369
Esmery			3	Rest of plant	0.740	0.050	0.790	2008/1028267
Hallon			7	Beans with pods	0.060	<0.01	0.070	
L070853			7	Rest of plant	0.430	0.040	0.470	
			14	Beans with pods	0.040	<0.01	0.050	
			14	Rest of plant	0.420	0.050	0.470	
Germany	2×	150	0	Rest of plant	4.570	0.100	4.670	Klaas, Ziske
2007	0.120		0	Beans with pods	0.200	<0.01	0.210	2009
69121			4	Rest of plant	2.830	0.080	2.910	309369
Heidelberg			4	Beans with pods	0.140	<0.01	0.150	2008/1028267
L070854			7	Rest of plant	2.650	0.090	2.740	
			7	Beans with pods	0.080	<0.01	0.090	
			14	Rest of plant	1.990	0.090	2.080	
			14	Beans with pods	0.120	<0.01	0.130	
United	2×	150	0	Rest of plant	9.320	0.200	9.520	Klaas, Ziske
Kingdom	0.120		0	Beans with pods	0.580	0.010	0.590	2009
2007			2	Rest of plant	6.100	0.360	6.460	309369
CV37 9SJ			2	Beans with pods	0.690	0.040	0.730	2008/1028267
Stratford-			7	Rest of plant	6.340	0.300	6.640	
Upon-Avon			7	Beans with pods	0.370	0.020	0.390	
L070855			13	Rest of plant	3.460	0.250	3.710	
			13	Beans with pods	0.230	0.020	0.250	
Spain	2×	400	0	Pods with seeds	0.380	<0.01	0.390	Meyer
2011	0.100		0	Rest of plant	4.900	0.045	4.900	2012
29001			3	Pods with seeds	0.310	<0.01	0.320	309370_1
Malaga			3	Rest of plant	5.300	0.150	5.500	2012/1171748
(Dona)			7	Pods with seeds	0.130	<0.01	0.140	
L110415			7	Rest of plant	2.800	0.160	2.900	
			7	Pods w/o seeds	0.180	<0.01	0.190	
			7	Seeds	<0.01	<0.01	<0.02	
			14	Pods with seeds	0.020	<0.01	0.030	
			14	Rest of plant	3.100	0.130	3.200	
			14	Pods w/o seeds	0.200	<0.01	0.210	
			14	Seeds	<0.01	<0.01	<0.02	
Spain	2×	400	0	Pods with seeds	0.290	<0.01	0.300	Meyer
2011	0.100		0	Rest of plant	2.300	0.027	2.300	2012
29001			3	Pods with seeds	0.160	<0.01	0.170	309370_1
Malaga			3	Rest of plant	2.300	0.160	2.400	2012/1171748
(Festival)			7	Pods with seeds	0.140	<0.01	0.150	

Country Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2 x 0 .1, PHI 7days								
L110416			7	Rest of plant	1.600	0.160	1.800	
			7	Pods w/o seeds	0.180	0.120	0.200	
			7	Seeds	<0.01	<0.01	<0.02	
			14	Pods with seeds	0.064	<0.01	0.074	
			14	Rest of plant	1.300	0.160	1.500	
			14	Pods w/o seeds	0.310	0.015	0.320	
			14	Seeds	<0.01	<0.01	<0.02	

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

_ underlined values were used for MRL calculation

Succulent beans without pods

The intended uses of pyraclostrobin in succulent beans without pods as supported by field residue data consists of maximum 2 foliar applications of 0.100–0.120 kg ai/ha each. For succulent beans without pods, the GAP tested in Europe corresponds to the cGAP in Canada, Spain, Taiwan Province of China and the USA.

Broad bean seeds

During the 2010 growing season, four field trials in broad beans were conducted in Southern France, Greece, Italy and Spain to determine the residue levels of pyraclostrobin (BAS 500 F) (DocID 2011/1135353). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was applied two times at single rates of 0.100 kg ai/ha in a spray volume of 400 L/ha using commercial equipment. No adjuvant was used. Application timings were 16–19 and 6–7 days before harvest (DBH). Samples (0.5 kg) of broad bean seeds were taken directly after the last application (0 DALA, BBCH 75–89) and at 2–3 (BBCH 76–89), 6–7 (BBCH 79–89) and 13–14 (BBCH 83–89) DALA.

During the growing season of 2009/10, four field trials in broad beans were conducted in Southern France, Greece, Italy and Spain to determine the residue levels of pyraclostrobin (BAS 500 F) (DocID 2010/1165741). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was applied two times at single rates of 0.100 kg ai/ha in a spray volume of 400 L/ha. Application timings were 16–19 and 7–9 days before harvest (DBH). Samples of broad bean seeds were taken directly after the last application (0 DALA) and at 3–4, 7–9 and 13–14 DALA.

All specimens were analysed for pyraclostrobin and its metabolite 500M07 using BASF method no. 535/1 or BASF method no. 0076/01. The methods has an LOQ of 0.01 mg/kg. The efficiency of the method was determined by fortifying control samples (seeds and rest of plant) at levels of 0.01, 0.1 and 10 mg/kg with standard solutions of pyraclostrobin and 500M07. The results of overall procedural recovery experiments in samples averaged 91.9% for pyraclostrobin and 91.5% for 500M07. The maximum storage interval from harvest until start of analysis was 295 days.

Table 54 Results of residue trials with pyraclostrobin conducted in broad bean (according to critical GAP)

Country Year Location Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2× 0.1 g ai/ha , PHI 7days								
France (S)	2×	400	0	Seeds	<0.01	<0.01	<0.02	Meyer
2010	0.100		0	Rest of plant	0.800	0.200	0.820	2011
47120 Duras			2	Seeds	<0.01	<0.01	<0.02	359584
L100419			2	Rest of plant	0.390	0.400	0.430	2011/1135353
			7	Seeds	<0.01	<0.01	<0.02	
			7	Rest of plant	0.540	0.140	0.680	
			14	Seeds	<0.01	<0.01	<0.02	
			14	Rest of plant	0.940	0.270	1.200	

Country Year Location Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2× 0.1 g ai/ha , PHI 7days								
Greece 2010 57500 Epanomi L100420	2× 0.100	400	0 0 3 3 6 6 13 13	Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant	0.014 3.800 0.046 5.600 <0.01 4.000 <0.01 4.100	<0.01 0.140 <0.01 0.660 <0.01 0.570 <0.01 0.590	0.024 3.900 0.056 6.200 <0.02 4.600 <0.02 4.700	Meyer 2011 359584 2011/1135353
Italy 2010 40018 San Pietro in Casale L100421	2× 0.100	400	0 0 3 3 7 7 14 14	Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant	<0.01 2.000 <0.01 0.650 <0.01 1.700 <0.01	<0.01 0.075 <0.01 0.040 <0.01 0.170 <0.01	<0.02 2.100 <0.02 0.690 <0.02 1.900 <0.02	Meyer 2011 359584 2011/1135353
Spain 2010 29001 Málaga L100422	2× 0.100	400	0 0 3 3 7 7 14 14	Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant	<0.01 0.710 <0.01 0.710 <0.01 1.400 <0.01 0.710	<0.01 0.024 <0.01 0.058 <0.01 0.130 <0.01 0.740	<0.02 0.730 <0.02 0.760 <0.02 1.500 <0.02 0.780	Meyer 2011 359584 2011/1135353
France (S) 2009 47120 Duras L090164	2× 0.100	400	0 0 2 2 7 7 14 14	Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant	<0.01 1.610 <0.01 0.830 <0.01 0.200 <0.01 0.110	<0.01 0.030 <0.01 0.070 <0.01 0.060 <0.01 0.040	<0.02 1.640 <0.02 0.900 <0.02 0.260 <0.02 0.150	Schulz 2010 359582 2010/1165741
Greece 2009 57500 Epanomi L090165	2× 0.100	400	0 0 3 3 6 6 13 13	Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant	0.040 5.400 <0.01 1.120 <0.01 1.620 <0.01 1.000	<0.01 0.290 <0.01 0.220 <0.01 0.450 <0.01 0.290	0.050 5.690 <0.02 1.340 <0.02 2.070 <0.02 1.290	Schulz 2010 359582 2010/1165741
Italy 2009 71042 Cerignola L090166	2× 0.100	400	0 0 3 3 7 7 14 14	Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant Seeds Rest of plant	<0.01 5.840 <0.01 2.780 <0.01 3.680 <0.01 2.960	<0.01 0.220 <0.01 0.310 <0.01 0.660 <0.01 0.580	<0.02 6.060 <0.02 3.090 <0.02 4.340 <0.02 3.540	Schulz 2010 359582 2010/1165741
Spain 2009 29001	2× 0.100	400	0 0 3	Seeds Rest of plant Seeds	<0.01 1.150 <0.01	<0.01 0.040 <0.01	<0.02 1.190 <0.02	Schulz 2010 359582

Country Year Location Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2× 0.1 g ai/ha , PHI 7days								
Málaga			3	Rest of plant	0.610	0.040	0.650	2010/1165741
L090167			7	Seeds	<0.01	<0.01	<0.02	
			7	Rest of plant	0.680	0.060	0.740	
			14	Seeds	<0.01	<0.01	<0.02	
			14	Rest of plant	0.380	0.040	0.420	

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

_ underlined values were used for MRL calculation

Common bean seeds

During the 2010 growing season, five field trials in green bean were conducted in Southern France, Germany, Greece, Italy and Spain and to determine the residue levels of pyraclostrobin (DocIDs 2011/1135971 and 2011/1173942). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was applied two times at single rates of 0.100 kg ai/ha for pyraclostrobin in a spray volume of 400 L/ha for trials L100423–L100426. In trial L100591, the spray volume was 150 L/ha using commercial equipment, which simulated commercial applications. No adjuvant was used. Application timings were 14 and 7–8 days before harvest (DBH). Samples 1 kg/24 pieces of pods with seeds, 1 kg/12 plants of rest of plant, 0.2 kg of seeds) were taken directly after the last application (0 DALA, BBCH 72–81) and at 2–3 (BBCH 75–82), 7–8 (BBCH 77–82) and 13–15 (BBCH 79–89) DALA. The maximum storage interval from harvest until start of analysis was 273 days.

During the 2010 growing season, eight field trials in green bean were conducted in Belgium, Northern and Southern France, Germany, Greece, Italy, the Netherlands and Spain to determine the residue levels of pyraclostrobin (DocID 2010/1109477). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was applied two times at single rates of 0.1206 kg ai/ha in a spray volume of 150–180 L/ha for trials L090139–L090142. In trials L090143–L090146, the spray volume was 100 L/ha with a rate of 0.1005 kg ai/ha using commercial equipment. No adjuvant was used. Application timings were 13–14 and 6–8 days before harvest (DBH). Samples of seeds were taken at 6–8 (BBCH 78–89) and 13–14 (BBCH 79–89) DALA. The maximum storage interval from harvest until start of analysis was 301 days.

During the 2011 growing season, two field trials in green bean were conducted in Spain to determine the residue levels of pyraclostrobin (DocID 2012/1171748). The WG formulation (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was applied two times at single rates of 0.100 kg ai/ha in a spray volume of 400 L/ha using commercial equipment. No adjuvant was used. Application timings were 13–14 and 7 days before harvest (DBH). Samples of green beans (different matrices) were taken directly after the last application (0 DALA, BBCH 77–80), as well as at 3 (BBCH 80–85), 7 (BBCH 80–89) and 14 (BBCH 80–89) DALA. The maximum storage interval from harvest until start of analysis was 204 days.

All specimens were analysed for pyraclostrobin and its metabolite 500M07 using BASF method no. 535/1 or BASF method no. 0076/01. The method has an LOQ of 0.01 mg/kg. The efficiency of the method was determined by fortifying control samples (pods with seeds, rest of plant and seeds) in the level of 0.01, 0.1 and 10 mg/kg with standard solutions of pyraclostrobin and 500M07. The results of overall procedural recovery experiments in samples averaged 91.9% for pyraclostrobin and 91.3% for 500M07.

Table 55 Results of residue trials with pyraclostrobin conducted in common bean (according to critical GAP)

Country Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2× 0.1 g ai/ha , PHI 7days								
France (S)	2×	400	0	Pods with seeds	0.170	<0.01	0.180	Meyer
2010	0.100		0	Rest of plant	4.200	0.060	4.200	2011
47250			3	Pods with seeds	0.110	<0.01	0.120	309370
Bougnon			3	Rest of plant	2.600	0.200	2.800	2011/1135971
L100423			7	Pods w/o seeds	0.080	<0.01	0.090	
			7	Seeds	<0.01	<0.01	<0.02	

Country Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2× 0.1 g ai/ha , PHI 7days								
Greece	2×	400	0	Pods with seeds	0.210	<0.01	0.220	Meyer
2010	0.100		0	Rest of plant	6.200	0.070	6.300	2011
57500			3	Pods with seeds	0.110	<0.01	0.120	309370
Epanomi			3	Rest of plant	2.000	0.160	2.200	2011/1135971
L100424			7	Pods with seeds	0.055	<0.01	0.065	
			7	Rest of plant	0.850	0.089	0.940	
			7	Pods w/o seeds	0.072	0.013	0.085	
			7	Seeds	<0.01	<0.01	<0.02	
			15	Pods with seeds	0.021	<0.01	0.031	
			15	Rest of plant	0.480	0.056	0.540	
			15	Pods w/o seeds	0.037	<0.01	0.047	
			15	Seeds	<0.01	<0.01	<0.02	
Italy	2×	400	0	Pods with seeds	0.370	0.011	0.380	Meyer
2010	0.100		0	Rest of plant	5.700	0.370	6.100	2011
40047			3	Pods with seeds	0.270	0.014	0.280	309370
Granarolo			3	Rest of plant	4.900	0.460	5.400	2011/1135971
dell'Emilia			7	Pods with seeds	0.240	0.020	0.260	
L100425			7	Rest of plant	3.900	0.510	4.400	
			7	Pods w/o seeds	0.280	0.022	0.300	
			7	Seeds	<0.01	<0.01	<0.02	
			14	Pods with seeds	0.220	0.027	0.250	
			14	Rest of plant	2.500	0.400	2.900	
			14	Pods w/o seeds	0.240	0.025	0.260	
			14	Seeds	0.018	<0.01	0.028	
Spain	2×	400	0	Pods with seeds	0.240	<0.01	0.250	Meyer
2010	0.100		0	Rest of plant	3.300	0.081	3.400	2011
29001			3	Pods with seeds	0.170	<0.01	0.180	309370
Malaga			3	Rest of plant	4.200	0.320	4.500	2011/1135971
L100426			7	Pods with seeds	0.210	0.013	0.230	
			7	Rest of plant	3.900	0.410	4.300	
			14	Pods with seeds	<0.01	<0.01	<0.02	
			14	Rest of plant	<0.01	<0.01	<0.02	
Germany	1×	150	0	Pods with seeds	0.170	<0.01	0.180	Meyer
2010	0.378		0	Rest of plant	6.000	0.080	6.100	2011
68623	1×		2	Pods with seeds	0.190	<0.01	0.200	309370
Lampertheim	0.396		2	Rest of plant	3.300	0.140	3.400	2011/1135971
L100591			8	Pods with seeds	0.066	<0.01	0.076	
			8	Rest of plant	1.400	0.100	1.500	
			13	Pods with seeds	0.062	<0.01	0.072	
			13	Rest of plant	1.300	0.200	1.500	
			13	Pods w/o seeds	0.067	<0.010	0.077	
			13	Seeds	<0.01	<0.01	<0.02	
Germany	2×	180	0	Pods with seeds	0.320	0.010	0.330	Schulz, Ziske
2010	0.1432		0	Rest of plant	5.100	0.120	5.220	2010
67245			3	Pods with seeds	0.060	0.010	0.070	309351
Lambsheim			3	Rest of plant	0.440	0.030	0.470	2010/1109477
L090139			7	Pods with seeds	0.030	<0.01	0.040	
			7	Rest of plant	0.160	0.020	0.180	
			7	Pods w/o seeds	0.020	<0.01	0.030	
			7	Seeds	<0.01	<0.01	0.020	
			14	Pods with seeds	0.010	<0.01	0.020	
			14	Rest of plant	<0.01	<0.01	0.020	
			14	Pods w/o seeds	0.010	<0.01	0.020	
			14	Seeds	<0.01	<0.01	0.020	

Country Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2× 0.1 g ai/ha , PHI 7days								
The	2×	150	0	Pods with seeds	0.190	0.010	0.200	Schulz, Ziske
Netherlands	0.1206		0	Rest of plant	6.300	0.290	6.590	2010
2010			3	Pods with seeds	0.220	0.010	0.230	309351
8255 RE			3	Rest of plant	4.960	0.400	5.360	2010/1109477
Swifterbant			6	Pods with seeds	0.240	0.020	0.260	
L090140			6	Rest of plant	3.540	0.430	3.970	
			6	Pods w/o seeds	0.150	0.010	0.160	
			6	Seeds	0.010	<0.01	0.020	
			13	Pods with seeds	0.190	0.020	0.210	
			13	Rest of plant	1.440	0.270	1.710	
			13	Pods w/o seeds	0.190	0.020	0.210	
			13	Seeds	0.010	<0.01	0.020	
France (N)	2×	150	0	Pods with seeds	0.790	0.040	0.830	Schulz, Ziske
2010	0.1206		0	Rest of plant	8.700	0.250	8.950	2010
72250			3	Pods with seeds	0.680	0.090	0.770	309351
Parigne			3	Rest of plant	3.570	0.420	3.990	2010/1109477
l'Eveque			7	Pods with seeds	0.260	0.070	0.330	
L090141			7	Rest of plant	2.500	0.310	2.810	
			7	Pods w/o seeds	1.570	0.340	1.910	
			7	Seeds	0.270	0.020	0.290	
			14	Pods with seeds	0.220	0.090	0.310	
			14	Rest of plant	1.560	0.240	1.800	
			14	Pods w/o seeds	0.880	0.330	1.210	
			14	Seeds	0.040	<0.01	0.050	
Belgium	2×	150	0	Pods with seeds	0.300	0.010	0.310	Schulz, Ziske
2010	0.0804		0	Rest of plant	6.550	0.180	6.730	2010
6280			3	Pods with seeds	0.200	0.010	0.210	309351
Gerpinnes			3	Rest of plant	3.160	0.210	3.370	2010/1109477
L090142			6	Pods with seeds	0.130	0.010	0.140	
			6	Rest of plant	1.630	0.210	1.840	
			6	Pods w/o seeds	0.180	0.020	0.200	
			6	Seeds	0.020	<0.01	0.030	
			13	Pods with seeds	0.050	0.010	0.060	
			13	Rest of plant	0.410	0.110	0.520	
			13	Pods w/o seeds	0.090	0.020	0.110	
			13	Seeds	0.010	<0.01	0.020	
France (S)	2×	100	0	Pods with seeds	0.280	0.010	0.290	Schulz, Ziske
2010	0.1005		0	Rest of plant	6.700	0.250	6.950	2010
47120 Duras			2	Pods with seeds	0.110	0.010	0.120	309351
L090143			2	Rest of plant	1.170	0.120	1.290	2010/1109477
			8	Pods with seeds	0.030	0.010	0.040	
			8	Rest of plant	0.210	0.040	0.250	
			8	Pods w/o seeds	0.060	0.010	0.070	
			8	Seeds	<0.01	<0.01	0.020	
			14	Pods with seeds	0.010	<0.01	0.020	
			14	Rest of plant	0.040	0.020	0.060	
			14	Pods w/o seeds	0.010	<0.01	0.020	
			14	Seeds	<0.01	<0.01	0.020	
Greece	2×	100	0	Pods with seeds	0.120	<0.01	0.130	Schulz, Ziske
2010	0.1206		0	Rest of plant	6.100	0.100	6.200	2010
57500			3	Pods with seeds	0.060	<0.01	0.070	309351
Epanomi			3	Rest of plant	1.980	0.100	2.080	2010/1109477
L090144			7	Pods with seeds	0.030	<0.01	0.040	
			7	Rest of plant	0.920	0.080	1.000	

Country Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2× 0.1 g ai/ha , PHI 7days								
			7	Pods w/o seeds	0.070	<0.01	0.080	
			7	Seeds	<0.01	<0.01	0.020	
			14	Pods with seeds	0.010	<0.01	0.020	
			14	Rest of plant	0.230	0.040	0.270	
			14	Pods w/o seeds	0.020	<0.01	0.030	
			14	Seeds	<0.01	<0.01	0.020	
Italy 2010 48010 Barbiano di Cotignola L090145	2× 0.1206	150	0	Pods with seeds	0.160	<0.01	0.170	Schulz, Ziske 2010 309351 2010/1109477
			0	Rest of plant	5.500	0.040	5.540	
			3	Pods with seeds	0.080	0.010	0.090	
			3	Rest of plant	0.840	0.080	0.920	
			7	Pods with seeds	0.040	<0.01	0.050	
			7	Rest of plant	0.280	0.030	0.310	
			7	Pods w/o seeds	0.030	0.010	0.040	
			7	Seeds	0.010	<0.01	0.020	
			14	Pods with seeds	0.010	<0.01	0.020	
			14	Rest of plant	0.070	0.020	0.090	
			14	Pods w/o seeds	0.020	<0.01	0.030	
			14	Seeds	<0.01	<0.01	0.020	
Spain 2010 29001 Málaga L090146	2× 0.1206	150	0	Pods with seeds	0.490	0.020	0.510	Schulz, Ziske 2010 309351 2010/1109477
			0	Rest of plant	9.500	0.520	10.020	
			3	Pods with seeds	0.350	0.020	0.370	
			3	Rest of plant	5.950	0.390	6.340	
			7	Pods with seeds	0.280	0.020	0.300	
			7	Rest of plant	8.450	0.730	9.180	
			7	Pods w/o seeds	3.640	0.270	3.910	
			7	Seeds	<0.01	<0.01	0.020	
			14	Pods with seeds	0.010	<0.01	0.020	
			14	Rest of plant	1.550	0.220	1.770	
			14	Pods w/o seeds	2.270	0.260	2.530	
			14	Seeds	<0.01	<0.01	0.020	
Spain 2011 29001 Malaga (Dona) L110415	2× 0.100	400	0	Pods with seeds	0.380	<0.01	0.390	Meyer 2012 309370_1 2012/1171748
			0	Rest of plant	4.900	0.045	4.900	
			3	Pods with seeds	0.310	<0.01	0.320	
			3	Rest of plant	5.300	0.150	5.500	
			7	Pods with seeds	0.130	<0.01	0.140	
			7	Rest of plant	2.800	0.160	2.900	
			7	Pods w/o seeds	0.180	<0.01	0.190	
			7	Seeds	<0.01	<0.01	<0.02	
			14	Pods with seeds	0.020	<0.01	0.030	
			14	Rest of plant	3.100	0.130	3.200	
			14	Pods w/o seeds	0.200	<0.01	0.210	
			14	Seeds	<0.01	<0.01	<0.02	
Spain 2011 29001 Malaga (Festival) L110416	2× 0.100	400	0	Pods with seeds	0.290	<0.01	0.300	Meyer 2012 309370_1 2012/1171748
			0	Rest of plant	2.300	0.027	2.300	
			3	Pods with seeds	0.160	<0.01	0.170	
			3	Rest of plant	2.300	0.160	2.400	
			7	Pods with seeds	0.140	<0.01	0.150	
			7	Rest of plant	1.600	0.160	1.800	
			7	Pods w/o seeds	0.180	0.120	0.200	
			7	Seeds	<0.01	<0.01	<0.02	
			14	Pods with seeds	0.064	<0.01	0.074	
			14	Rest of plant	1.300	0.160	1.500	
			14	Pods w/o seeds	0.310	0.015	0.320	
			14	Seeds	<0.01	<0.01	<0.02	

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

_ underlined values were used for MRL calculation

Succulent peas without pods

Pea (Pisum sp.)

The intended critical use of pyraclostrobin in succulent peas without pods as supported by field residue data consists of maximum 2 foliar applications of 0.12 kg ai/ha each (total maximum seasonal application of 0.240 kg ai/ha). The PHI is 7 days. The critical GAP is supported either directly by residue data or indirectly by extrapolation.

During the 2010 growing season, eight field trials in pea were conducted in France, Germany, Greece, Italy, the Netherlands, Spain and the United Kingdom to determine the residue levels of pyraclostrobin (DocID 2011/1135348). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was applied two times at single rates of 0.1206 kg ai/ha in a spray volume of 150 L/ha in trials L100411–L100414 and at single rates of 0.1005 kg ai/ha in a volume of 400 L/ha in trials L100415–L100418. Application timings were 13–18 and 6–7 days before harvest (DBH). Applications were made using commercial equipment or equipment which simulated commercial applications. No adjuvant was used. Samples of peas without pods (0.5 kg) were taken at 6–7 (BBCH 79–87) and 11–14 (BBCH 79–88) DALA.

During the growing season of 2009, eight field trials in pea were conducted in France, Germany, Greece, Italy, the Netherlands, Spain and the United Kingdom to determine the residue levels of pyraclostrobin (DocID 2010/1130230). The WG formulation BAS 516 07 F (67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was applied two times at single rates of 0.1206 kg ai/ha in trials L090115–L090118 and of 0.1005 kg ai/ha in trials L090119–L090122. Application timings were 13–15 and 6–8 days before harvest (DBH) with a spray volume of 150 L/ha. Applications were made using commercial equipment or equipment which simulated commercial applications. No adjuvant was used. Samples of peas without pods (0.5 kg) were taken at 6–8 (BBCH 79–87) and 13–14 (BBCH 79–97) DALA.

All specimens were analysed for pyraclostrobin and its metabolite 500M07 using BASF method no. 535/1. The method has an LOQ of 0.01 mg/kg. The efficiency of the method was determined by fortifying control samples at levels of 0.01, 0.1 and 1.0 mg/kg (peas without pods) and 0.01, 0.1, 10 and 100 mg/kg (rest of plant without roots) with standard solutions of pyraclostrobin and 500M07. The results of overall procedural recovery experiments in samples averaged 90.6% and 94% for pyraclostrobin and 94.3% and 89.6% for 500M07 in peas without pods and rest of plant without roots, respectively.

Table 56 Results of residue trials with pyraclostrobin conducted in pea (Pisum sp.) (according to critical GAP)

Country Year Location (variety) Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP: 2× 0.1, PHI 7days								
Germany 2010 68623 Lampertheim L100411	2× 0.1206	150	0 0 4 4 7 7 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	<0.01 2.700 0.012 1.300 0.010 1.300 <0.01 0.980	<0.01 0.047 0.012 0.093 <0.01 0.130 <0.01 0.110	<0.02 2.800 0.022 1.400 0.020 1.400 <0.02 1.100	Meyer 2011 360457 2011/1135348
France (N) 2010 02190 Amifontaine L100412	2× 0.1206	150	0 0 3 3 7 7 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.026 2.700 0.011 2.100 <0.01 2.000 0.011 2.700	<0.01 0.081 <0.01 0.210 <0.01 0.370 <0.01 0.760	0.036 2.800 0.021 2.300 <0.021 2.400 0.021 3.500	Meyer 2011 360457 2011/1135348
United Kingdom 2010	2× 0.1206	150	0 0 2	Peas w/o pods Rest of plant Peas w/o pods	0.017 1.600 0.017	<0.01 0.034 <0.01	0.027 1.600 0.027	Meyer 2011 360457

Country Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2× 0.1, PHI 7days								
Chipping Cambden GL55 G5D L100413			2 7 7 13 13	Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	1.000 0.014 0.430 <0.01 0.470	0.060 <0.01 0.029 <0.01 0.066	1.100 0.024 0.460 <0.02 0.540	2011/1135348
The Netherlands 2010 8218 ND Lelystad L100414	2× 0.1206	150	0 0 4 4 7 7 11 11	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.016 2.500 <0.01 1.100 <0.01 2.000 <0.01 1.400	<0.01 0.012 <0.01 0.068 <0.01 0.220 <0.01 0.170	0.026 2.500 <0.02 1.200 <0.02 2.200 <0.02 1.600	Meyer 2011 360457 2011/1135348
Italy 2010 40018 San Pietro in Casale L100415	2× 0.1206	400	0 0 3 3 7 7 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.014 2.000 <0.01 1.400 <0.01 0.690 <0.01 0.250	<0.01 0.088 <0.01 0.180 <0.01 0.130 <0.01 0.085	0.024 2.100 <0.02 1.600 <0.02 0.830 <0.02 0.330	Meyer 2011 360457 2011/1135348
Spain 2010 18680 Salobreña L100416	2× 0.1206	400	0 0 4 4 7 7 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.140 1.900 0.075 0.840 0.074 0.760 0.038 0.310	<0.01 0.015 <0.01 0.021 <0.01 0.038 <0.01 0.021	0.150 1.900 0.085 0.860 0.084 0.790 0.048 0.330	Meyer 2011 360457 2011/1135348
France (S) 2010 47320 Lafitte sur Lot L100417	2× 0.1206	400	0 0 4 4 6 6 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.021 3.000 <0.01 2.200 0.014 3.100 <0.01 0.330	<0.01 0.110 <0.01 0.250 <0.01 0.370 <0.01 0.079	0.031 3.100 <0.02 2.400 0.024 3.500 <0.02 0.410	Meyer 2011 360457 2011/1135348
Greece 2010 57500 Thessaloniki L100418	2× 0.1206	400	0 0 4 4 7 7 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.012 1.600 <0.01 0.660 <0.01 0.630 <0.01 0.540	<0.01 0.066 <0.01 0.140 <0.01 0.180 <0.01 0.220	0.022 1.700 <0.02 0.800 <0.02 0.810 <0.02 0.760	Meyer 2011 360457 2011/1135348
United Kingdom 2009 CV37 9SJ Stratford- Upon-Avon L090115	2× 0.1206	150	0 0 4 4 7 7 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.019 1.200 0.018 0.640 0.013 0.630 <0.01 0.210	<0.01 0.026 <0.01 0.037 <0.01 0.050 <0.01 0.023	0.029 1.300 0.028 0.670 0.023 0.680 <0.02 0.240	Schulz, Ziske 2010 360454 2010/1130230

Country Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2× 0.1, PHI 7days								
The Netherlands 2009 8255 RE Swifterbant L090116	2× 0.1206	150	0 0 3 3 6 6 13 13	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.013 2.800 <0.01 0.650 <0.01 0.380 <0.01 0.860	<0.01 0.033 <0.01 0.034 <0.01 0.029 <0.01 0.079	0.023 2.800 <0.02 0.680 <0.02 0.410 <0.02 0.940	Schulz, Ziske 2010 360454 2010/1130230
Germany 2009 69221 Dossenheim (Progress No. 9) L090117	2× 0.1206	150	0 0 3 3 7 7 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.020 2.300 0.025 1.200 <0.01 0.640 <0.01 0.600	<0.01 0.069 <0.01 0.110 <0.01 0.120 <0.01 0.130	0.030 2.400 0.035 1.300 <0.02 0.760 <0.02 0.730	Schulz, Ziske 2010 360454 2010/1130230
Germany 2009 69221 Dossenheim (Maxigolt) L090118	2× 0.1206	150	0 0 3 3 7 7 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.029 1.700 0.010 1.000 <0.01 0.410 <0.01 0.440	<0.01 0.043 <0.01 0.072 <0.01 0.060 <0.01 0.081	0.039 1.700 0.020 1.100 <0.02 0.470 <0.02 0.520	Schulz, Ziske 2010 360454 2010/1130230
Italy 2009 40018 San Pietro in Casale L090119	2× 0.1206	150	0 0 3 3 8 8 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.012 4.600 0.013 3.100 0.022 2.600 0.020 4.900	<0.01 0.120 <0.01 0.220 <0.01 0.340 <0.01 0.940	0.022 4.700 0.023 3.300 0.032 3.000 0.030 5.800	Schulz, Ziske 2010 360454 2010/1130230
Spain 2009 18600 Motril L090120	2× 0.1206	150	0 0 3 3 7 7 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.027 1.600 <0.01 1.000 <0.01 0.600 <0.01 0.240	<0.01 0.053 <0.01 0.091 <0.01 0.086 <0.01 0.062	0.037 1.600 <0.02 1.100 <0.02 0.680 <0.02 0.310	Schulz, Ziske 2010 360454 2010/1130230
France (S) 2009 47320 Lafitte sur Lot L090121	2× 0.1206	150	0 0 4 4 7 7 13 13	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	0.012 1.500 <0.01 0.700 <0.01 0.560 <0.01 0.440	<0.01 0.080 <0.01 0.120 <0.01 0.100 <0.01 0.094	0.022 1.600 <0.02 0.820 <0.02 0.660 <0.02 0.540	Schulz, Ziske 2010 360454 2010/1130230
Greece 2009	2× 0.1206	150	0 0	Peas w/o pods Rest of plant	<0.01 1.300	<0.01 0.030	<0.02 1.300	Schulz, Ziske 2010

Country Year Location (variety) Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP: 2× 0.1, PHI 7days								
57500 Thessaloniki L090122			4 4 7 7 14 14	Peas w/o pods Rest of plant Peas w/o pods Rest of plant Peas w/o pods Rest of plant	<0.01 0.930 <0.01 0.800 <0.01 0.490	<0.01 0.060 <0.01 0.085 <0.01 0.073	<0.02 0.990 <0.02 0.880 <0.02 0.560	360454 2010/1130230

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

w/o = without

_ underlined values were used for MRL calculation

Pulses

Dry peas

The critical use of pyraclostrobin in pulses (dry peas) as supported by field residue data consists of maximum 2 foliar applications of 0.195 kg ai/ha each. The PHI is 21 days.

One study (DocID 1999/5154) with a total of eight field trials were conducted in field pea in Canada and the USA in 1999. Peas received two applications of the EC formulation BAS 500 00 F (250 g/L pyraclostrobin) at a targeted rate of 0.224 kg ai/ha in spray volumes between 100 and 189 L/ha. Application timings were between 29 and 34 days before harvest. Dry field pea seed samples were harvested at seed maturity between 30 and 34 days after the last application (DALA). The results of the trials were reviewed by the 2004 JMPR.

During the 2004 growing season, two field trials in field pea were conducted in Canada and the USA to determine the residue levels of pyraclostrobin (BAS 500 F) (DocID 2005/5000011). In one trial, peas received two applications of the EC formulation BAS 500 00 F (250 g/L pyraclostrobin) at rates between 0.217 and 0.226 kg ai/ha in a spray volume between 272 and 283 L/ha with a 6-day retreatment interval. One additional trial in pea was conducted at various rates (0.05, 0.10, 0.20 and 0.50 kg ai/ha) to generate a residue standard curve for field pea grown in NAFTA Region 14. The application was made at a 10- or 12-day retreatment interval; the spray volume ranged between 110 and 158 L/ha. At the site in the USA, mature dry field peas were taken 22 days after the last application (DALA). In Canada, samples were collected at 33 DALA.

Table 57 Results of residue trials with pyraclostrobin conducted in field pea (dry) (according to critical GAP)

Country Year Location (variety) Trial No.	Application				PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [c]	Total Residue [mg/kg] [d]	Author Report Year Study No. DocID
	Formu-lation	Method	Rate [kg ai/ha] [a]	Spray volume [L/ha] [b]						
cGAP: 2× 0.15, PHI 30 days										
USA 1999 Campbell / MN (Carneval) 99216	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	188	30	Seeds	<0.02	<0.02	<0.04	Versoi, Abdel-Baky & Riley 2000 46591 1999/5154
USA 1999 Fergus Falls / MN (Profi) 99217	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	189	30	Seeds	<0.02	<0.02	<0.04	Versoi, Abdel-Baky & Riley 2000 46591 1999/5154
Canada 1999 Red Deer / AB (Profi)	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	101 [e]	30	Seeds	0.140	0.100	0.250	Versoi, Abdel-Baky & Riley 2000 46591

Country Year Location (variety) Trial No.	Application				PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [c]	Total Residue [mg/kg] [d]	Author Report Year Study No. DocID
	Formu-lation	Method	Rate [kg ai/ha] [a]	Spray volume [L/ha] [b]						
99218										1999/5154
Canada 1999 Lacombe / AB (Profi) 99219	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	100	34	Seeds	0.125	0.120	0.250	Versoi, Abdel-Baky & Riley 2000 46591 1999/5154
Canada 1999 Blaine Lake / SK (Carneval) 99220	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	112	30	Seeds	0.045	0.025	0.070	Versoi, Abdel-Baky & Riley 2000 46591 1999/5154
Canada 1999 Wakaw / SK (Carneval) 99221	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	109	30	Seeds	0.085	0.070	0.160	Versoi, Abdel-Baky & Riley 2000 46591 1999/5154
Canada 1999 Minto / MB (Delta) 99222	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	101	30	Seeds	0.035	0.040	0.080	Versoi, Abdel-Baky & Riley 2000 46591 1999/5154
Canada 1999 Minto / MB (Delta) 99223	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	101	30	Seeds	0.200	0.135	0.340	Versoi, Abdel-Baky & Riley 2000 46591 1999/5154
USA 2004 Payette / ID RCN 2004133	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	272 - 283	22	Seeds	0.0205	<0.02	0.040	Jordan 2005 172171 2005/5000011
Canada 2004 Innisfail / AB RCN 2004189	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.204 - 0.2081)	152 - 158	33	Seeds	0.087	0.0315	0.120	Jordan 2005 172171 2005/5000011

[a] US rates derived from conversion factors: lb/acre (kg/ha × 1.12) and GAP = gal/acre (L/ha × 9.354)

[b] Nominal rates

[c] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[d] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

[e] single value from 2nd application

_ underlined values were used for MRL calculation

Lentil, dry

One study (DocID 1999/5159) with a total of five field trials was conducted in lentil in Canada and the USA in 1999. Lentils received two applications of the EC formulation BAS 500 00 F (250 g/L pyraclostrobin) at a targeted rate of 0.224 kg ai/ha in spray volumes between 107 and 190 L/ha. Application timings were between 29 and 33 days before harvest. Dry seeds were harvested 30 days after the last application (DALA). In addition, in one site, dry lentil seed samples were collected at 26, 35, 40 and 45 DALA. The results of the trials, reviewed by the 2004 JMPR, are shown in Table 68.

During the 2004 growing season, one field trial in lentil was conducted in Canada to determine the residue levels of pyraclostrobin (BAS 500 F) (DocID 2005/5000011). As part of a residue standard curve trial, lentils received two applications of the EC formulation BAS 500 00 F (250 g/L pyraclostrobin) at various rates (0.05, 0.10, 0.20 and 0.50 kg ai/ha). Applications were made at a 10- or 12- day retreatment interval in spray volumes between 110 and 117 L/ha. Lentil samples were taken 31 days after the last application (DALA).

Table 58 Results of residue trials with pyraclostrobin conducted in lentil (dry) (according to critical GAP)

Country Year Location Trial No.	Application				PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [c]	Total Residue [mg/kg] [d]	Author Report Year Study No. DocID
	Formu-lation	Method	Rate [kg ai/ha] [a]	Spray volume [L/ha] [b]						
cGAP: 2× 0.15, PHI 30 days										
USA 1999 Gardner / ND 99224	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	190	30	Dry seed	0.030	<0.02	0.050	Versoi, Abdel- Baky & Riley 2000 46590 1999/5159
USA 1999 Velva / ND 99225	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	142	29	Dry seed	0.080	<0.02	0.100	Versoi, Abdel- Baky & Riley 2000 46590 1999/5159
USA 1999 Dagmar / MT 99226	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	140	29	Dry seed	0.165	0.055	0.220	Versoi, Abdel- Baky & Riley 2000 46590 1999/5159
Canada 1999 Sherwood Park / AB 99227	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	109	33	Dry seed	0.085	0.235	0.240	Versoi, Abdel- Baky & Riley 2000 46590 1999/5159
Canada 1999 Hamiota / MB 99228	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	107	30	Dry seed	0.250	0.060	0.310	Versoi, Abdel- Baky & Riley 2000 46590 1999/5159
Canada 2004 Rosthern / SK RCN 2004190	BAS 500 00 F (EC) 250 g/L	foliar	2× 0.224	110 - 117	31	Immature pods/ seeds	0.114	0.0285	0.140	Jordan 2005 172171 2005/5000011

[a] US rates derived from conversion factors: lb/acre (kg/ha x 1.12) and GAP = gal/acre (L/ha x 9.354)

[b] Nominal rates

[c] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[d] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

_ underlined values were used for MRL calculation

Root and tuber vegetables

Root vegetables (subgroup 016A)

The intended critical use of pyraclostrobin in root vegetables (carrot and radish), as supported by field residue data consists of 3 foliar applications of 0.234 kg ai/ha each (total maximum seasonal application of max 0.702 kg ai/ha). The PHI is 0 days.

Radish

One study (DocID 1999/5149) with a total of five field trials was conducted in radish in the USA in 1999. The BAS 500 DI F were applied three times with a target rate of at a rate of 0.224 kg ai/ha of pyraclostrobin in spray volumes between 92 and 291 L/ha. There was a 7-day interval between applications starting from 14 days prior to the anticipated harvest date (DBH). Radish samples were collected on the day of the last application (0 DALA). The results of the trials, reported by the 2004 JMPR.

Carrot

A field study (DocID 1999/5155) with a total of eight field trials was conducted in carrot in the USA in 1999. In two trials, the BAS 516 00 F were applied six times with a target rate of at a rate of 0.09 kg ai/ha of pyraclostrobin in a spray volume of 260 L/ha. In the remaining 6 trials, the applied rate of pyraclostrobin was three times 0.224 kg ai/ha. There was a 7-day interval between applications starting from either 35 or 14 days prior to the anticipated harvest date (DBH). In all trials, carrot samples were collected on the day of the last application, while in one trial (99185) additional samples were taken at 5, 9, 15 and 20 DALA to assess the decline of residues. The results of the trials, were reported by the 2004 JMPR.

Tuberous and corm vegetables

Potato

The critical use of pyraclostrobin in potato as supported by field residue data consists of maximum 6 foliar applications of 0.219 kg ai/ha each. The PHI is 3 days.

A field study (DocID 1999/5148) with a total of 27 field trials was conducted in potatoes in USA (EPA regions 1, 2, 3, 5, 9, 10, 11) and Canada (PMRA zones 1A, 5B, 7A, 14) in 1999. BAS 500 02 F was applied six times with an application rate of 0.224 kg ai/ha each. In the Canadian trials, the same formulation and rate was used but only four treatments were done. Potato tubers were sampled 3 days after the last application. In addition, residue decline trials were performed collecting samples at 3, 14, 23, 33, and 43 days after last application.

The samples were analysed with BASF method no. D9808 which quantifies the parent compound pyraclostrobin and its metabolite 500M07. The limit of quantitation is 0.02 mg/kg each in all sample materials. The overall average results of the procedural recovery experiments obtained with each analytical series were 82% for pyraclostrobin and 87% for 500M07.

All trials testing BAS 500 02 F in potatoes conducted in Canada and the USA lead to the same result regardless of the number of treatments. None of the potato tuber samples showed any residue of either pyraclostrobin or its metabolite 500M07 above the limit of quantitation. The results of the trials were reviewed by the 2004 JMPR.

Stalk and stem vegetables

Stems and petioles

Celery

The intended critical uses of pyraclostrobin in celery as supported by field residue data consists of 3 foliar applications of 0.188 kg ai/ha each. The PHI is 14 days.

In Northern Europe, two field trials were conducted in celery during the 2005 growing season (DocID 2006/1015882). The formulation BAS 516 00 F (WG, 67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was foliar applied two times at rates of 0.1 kg pyraclostrobin/ha per application. The last application took place 14 days before harvest. The water volume used was 600 L/ha per application. Celery stalks with foliage were collected 7 and 14 days after the last application.

The specimens were analysed for pyraclostrobin and its metabolite 500M07 with BASF method No. 445/0, with a limit of quantitation of 0.02 mg/kg. This method, using LC/MS/MS to determine pyraclostrobin and its metabolite in celery matrices, was validated successfully resulting in average recoveries of 91% for pyraclostrobin and 87% for 500M07 at fortification levels of 0.02 mg/kg and 2.0 mg/kg.

In Southern Europe, two field trials were conducted in celery during the 2007 growing season (DocID 2008/1043868). Each field trial consisted of two plots (plot 1: untreated; plot 2: treated). The formulation BAS 516 07 F (WG, 67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was foliar applied two times at rates of 0.1 kg pyraclostrobin/ha per application. The applications took place 24 (±1) and 14 (±1) days before harvest. The water volume used was 400 L/ha per application. Celery stalks with foliage were collected immediately after last treatment at BBCH 43–45, as well as after 7, 14 and 21 DALA.

The specimens were analysed for pyraclostrobin and its metabolite 500M07 with the analytical method SOP-PA.0243 based on BASF analytical method No. 445/0 and 535/1, with a limit of quantitation of 0.01 mg/kg. This method using LC/MS/MS

to determine pyraclostrobin and its metabolite in celery matrices was validated successfully resulting in average recoveries of 85% for pyraclostrobin and 85% for 500M07 at fortification levels of 0.01 mg/kg and 1.0 mg/kg.

During the growing season 2007, three residue trials were performed in celery as field trials on different sites in Germany (DocID 2008/1090964). The formulation BAS 516 00 F (WG, 67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was foliar applied two times at rates of 0.1 kg pyraclostrobin/ha per application. The applications took place 24–28 and 14 days before harvest. The water volume used was 400–600 L/ha. Celery stalks with foliage were collected immediately after last treatment as well as after 7, 10, 14 and 21 DALA.

The specimens were analysed for pyraclostrobin with the analytical method SOP 5502 of LUFA Speyer, with a limit of quantitation of 0.01 mg/kg. This method using LC-MS/MS to determine pyraclostrobin in celery matrices was validated successfully resulting in average recoveries of 90% for pyraclostrobin at fortification levels of 0.01 mg/kg and 1.0 mg/kg.

In Northern and Southern Europe, four field trials were conducted in celery during the 2009 growing season (DocID 2010/1076715). Each field trial consisted of two plots (plot 1: untreated; plot 2: treated). The formulation BAS 516 07 F (WG, 67 g/kg BAS 500 F and 267 g/kg BAS 510 F) was foliar applied two times at rates of 0.1 kg pyraclostrobin/ha per application. The applications took place 24 (±1) and 14 (±1) days before harvest. Water volume used was 200 L/ha per application. Celery stalks with foliage were collected immediately after last treatment at BBCH 35–48, as well as after 7 (±1), 14 (±1) and 21 (±1) DALA.

The specimens were analysed for pyraclostrobin and its metabolite 500M07 with BASF analytical method No. 535/1, with a limit of quantitation of 0.01 mg/kg. This method, using LC/MS/MS to determine pyraclostrobin and its metabolite in celery matrices, was validated successfully resulting in average recoveries of 99% for pyraclostrobin and 98% for 500M07 at fortification levels of 0.01, 1.0 and 20 mg/kg.

Table 59 Results of residue trials with pyraclostrobin conducted in celery (according to critical GAP), foliar application

CROP Country, Year Location (variety) Trial No.	Application				PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
	Formu-lation	Method	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP: 2×0.1, PHI 14days										
Germany 2005 Schifferstadt (Tango) RU-F-2205 RPNW 1/1	BAS 516 00 F (WG) 67 g/kg	foliar	2× 0.100	600	7 14	stalks* stalks*	0.244▲ 0.240	0.055 0.046	0.299 0.286	Weber S. 2006 236119 2006/1015882
Germany 2005 Schifferstadt (Tango) RU-F-2205 RPNW 1/2	BAS 516 00 F (WG) 67 g/kg	foliar	2× 0.100	600	7 14	stalks* stalks*	0.330 0.213	0.076 0.059	0.406 0.272	Weber S. 2006 236119 2006/1015882
Italy 2007 Costa di Rovigo (Darklet) L070826	BAS 516 07 F (WG) 67 g/kg	foliar	2× 0.100	400	0 7 14 21	stalks* stalks* stalks* stalks*	1.80 0.58 0.21 0.17	0.33 0.07 0.03 0.03	2.13 0.65 0.24 0.20	Schulz H. 2009 309342 2008/1043868
France 2007 Le Passage (Lino) L070827	BAS 516 07 F (WG) 67 g/kg	foliar	2× 0.100	400	0 7 14 20	stalks* stalks* stalks* stalks*	1.48 0.60 0.59 0.27	0.02 0.03 0.04 0.03	1.50 0.63 0.63 0.30	Schulz H. 2009 309342 2008/1043868
Germany 2007 Butzbach (Tango) RU-F-1307 HEWE 2/1	BAS 516 00 F (WG) 67 g/kg	foliar	2× 0.100	600	0 7 10 14 21	stalks* stalks* stalks* stalks* stalks*	0.08 0.15 0.12 0.09 0.07	n.r. n.r. n.r. n.r. n.r.	n.a. n.a. n.a. n.a. n.a.	Anonymus 2009 AP 07 / 07 2008/1090964
Germany 2007 Schifferstadt (Tango)	BAS 516 00 F (WG) 67 g/kg	foliar	2× 0.100	400	0 7 10 14	stalks* stalks* stalks* stalks*	1.70 0.16 0.12 0.11	n.r. n.r. n.r. n.r.	n.a. n.a. n.a. n.a.	Anonymus 2009 AP 07 / 07 2008/1090964

CROP Country, Year Location (variety) Trial No.	Application				PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
	Formu-lation	Method	Rate [kg ai/ha]	Spray volume [L/ha]						
RU-F-1307 RPNW 2/1					21	stalks*	0.08	n.r.	n.a.	
Germany 2007 Erfurt (n.r.) RU-F-1307 THEF 2/1	BAS 516 00 F (WG) 67 g/kg	foliar	2× 0.100	600	0 7 10 14 21	stalks* stalks* stalks* stalks* stalks*	3.1 0.09 0.09 0.05 0.03	n.r. n.r. n.r. n.r. n.r.	n.a. n.a. n.a. n.a. n.a.	Anonymus 2009 AP 07 / 07 2008/1090964
Germany 2009 Düsseldorf (Viktoria) L090123	BAS 516 07 F (WG) 67 g/kg	foliar	2× 0.100	200	0 7 15 20	stalks* stalks* stalks* stalks*	2.41 0.24 0.10 0.12	0.01 <0.01 <0.01 <0.01	2.42 0.25 0.11 0.13	Schulz H. / Ziske J. 2010 359591 2010/1076715
Denmark 2009 Maribo (Imperial) L090124	BAS 516 07 F (WG) 67 g/kg	foliar	2× 0.100	200	0 6 13 22	stalks* stalks* stalks* stalks*	3.81 4.03** 2.63 0.64	0.12 0.29 0.19 0.08	3.93 4.32 2.82 0.72	Schulz H. / Ziske J. 2010 359591 2010/1076715
Italy 2009 Costa di Rovigo (Dorato D'asti) L090125	BAS 516 07 F (WG) 67 g/kg	foliar	2× 0.100	200	0 7 13 21	stalks* stalks* stalks* stalks*	1.80 0.18 0.15 0.10	0.03 0.02 0.02 0.01	1.83 0.20 0.17 0.11	Schulz H. / Ziske J. 2010 359591 2010/1076715
Spain 2009 Malaga (Trinova) L090126	BAS 516 07 F (WG) 67 g/kg	foliar	2× 0.100	200	0 7 14 21	stalks* stalks* stalks* stalks*	4.35 1.03 0.61 0.55	0.13 0.20 0.08 0.07	4.48 1.23 0.69 0.62	Schulz H. / Ziske J. 2010 359591 2010/1076715

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

* with foliage

▲he trial is considered as a not independent; therefore the result is not used for MRL calculation

for calculation purposes <0.01 was set as 0.01

n.r. = not reported

n.a. = not applicable

_ underlined values were used for MRL calculation

Asparagus (VS 0621)

The intended critical uses of pyraclostrobin in asparagus as supported by field residue data consists of maximum 2 foliar applications of 0.1 kg ai/ha each. The PHI is fixed by approved use.

In Northern France, Germany, Italy and Spain, four field trials were conducted in asparagus during the 2010/11 growing season (DocID 2011/1125588). The formulation BAS 516 07 F (WG, 67 g/kg pyraclostrobin and 267 g/kg BAS 510 F) was foliar applied two times at a rate of 0.1 kg ai/ha of pyraclostrobin in a spray volume of 400 L/ha. Applications took place at BBCH 69 and 9–11 days after the first application. Samples of asparagus spears were collected 187–270 days after the last application (DALA) at BBCH 49. In all samples of asparagus spears, residues of both pyraclostrobin and its metabolite 500M07 were below the LOQ of 0.01 mg/kg.

The specimens were analysed for pyraclostrobin and its metabolite 500M07 with BASF method No. 535/1, which has a limit of quantitation of 0.01 mg/kg. The results of procedural recovery experiments obtained with the analytical series at fortification levels of 0.01, 0.10 and 1.0 mg/kg in asparagus spears averaged at 95.7% for pyraclostrobin and at 94.3% for 500M07.

In Northern France, Germany, Italy and Spain four field trials were conducted in asparagus during the 2009/10 growing season (DocID 2011/1003318). The formulation BAS 516 07 F (WG, 67 g/kg BAS 500 F and 267 g/kg BAS 510 F) was foliar applied two times at a rate of 0.1 kg ai/ha of pyraclostrobin in a spray volume of 400 L/ha. Applications took place at BBCH 69 and 9–10

days after the first application. Samples of asparagus spears were collected 209–278 days after the last application (DALA) at BBCH 49.

In all samples of asparagus spears, residues of both pyraclostrobin and its metabolite 500M07 were below the LOQ of 0.01 mg/kg.

The specimens were analysed for pyraclostrobin and its metabolite 500M07 with BASF method No. 535/1, which has a limit of quantitation of 0.01 mg/kg. The results of procedural recovery experiments obtained with the analytical series at fortification levels of 0.01, 0.10 and 1.0 mg/kg in asparagus spears averaged at 87.2% for pyraclostrobin and at 86.3% for 500M07.

Table 60 Results of residue trials with pyraclostrobin conducted in asparagus (according to critical GAP), foliar application

CROP Country, Year Location (variety) Trial No.	Application				PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]
	Formu-lation	Method	Rate [kg ai/ha]	Spray volume [L/ha]					
cGAP: 2×0.1 kg ai/ha, PHI fixed by approved use									
Germany 2010/11 Gau Algesheim (Gijnlim) L100336	BAS 516 07 F (WG) 67 g/kg	foliar spray	2× 0.100	400	0 257	Whole plant [c] Spears	3.800 <0.01	0.120 <0.01	3.900 <0.02
France (N) 2010/11 Saint Etienne Roilaye (Andreas) L100337	BAS 516 07 F (WG) 67 g/kg	foliar spray	2× 0.100	400	0 270	Whole plant [c] Spears	2.500 <0.01	0.049 <0.01	2.600 <0.02
Italy 2010/11 Vaccolino (Eros) L100338	BAS 516 07 F (WG) 67 g/kg	foliar spray	2× 0.100	400	0 261	Whole plant [c] Spears	3.300 <0.01	0.120 <0.01	3.400 <0.02
Spain 2010/11 Huétor-Tájar (Negro) L100339	BAS 516 07 F (WG) 67 g/kg	foliar spray	2× 0.100	400	0 187	Whole plant [c] Spears	3.400 <0.01	0.160 <0.01	3.600 <0.02
Germany 2010/11 Gau Algesheim (Gijnlim) L090129	BAS 516 07 F (WG) 67 g/kg	foliar spray	2× 0.100	400	0 248	Whole plant [c] Spears	9.050 <0.01	0.350 <0.01	9.400 <0.02
France (N) 2010/11 Saint Etienne Roilaye (Andreas) L090130	BAS 516 07 F (WG) 67 g/kg	foliar spray	2× 0.100	400	0 278	Whole plant [c] Spears	5.000 <0.01	0.220 <0.01	5.220 <0.02
Italy 2010/11 Vaccolino (Eros) L090131	BAS 516 07 F (WG) 67 g/kg	foliar spray	2× 0.100	400	0 272	Whole plant [c] Spears	3.450 <0.01	0.040 <0.01	3.490 <0.02

CROP Country, Year Location (variety) Trial No.	Application				PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]
	Formu-lation	Method	Rate [kg ai/ha]	Spray volume [L/ha]					
cGAP: 2×0.1 kg ai/ha, PHI fixed by approved use									
Spain	BAS	foliar spray	2×	400	0	Whole plant [c]	3.570	0.100	3.670
2010/11	516 07 F		0.100		209	Spears	<0.01	<0.01	<0.02
Huétor-Tájar (Negro) L090132	(WG) 67 g/kg								

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

[c] without roots

Cereals

Rice

The intended critical use of pyraclostrobin in rice as supported by field residue data consists of maximum 2 foliar applications of 0.1 kg ai/ha each. The PHI is fixed by approved use (at the growth stage of BBCH 89 as well as at 45 DALA (days after last application).

During the 2013 growing season in Brazil, a total of seven field trials were conducted to determine the magnitude of the residues of pyraclostrobin (BAS 500 F) in representative locations of rice (DocID 2014/3004321 and 2014/3002603). The formulation BAS 500 23 F (100 g/L pyraclostrobin) was foliar applied two times at a rate of 0.100 kg ai/ha of pyraclostrobin and a spray volume of 100 L/ha. One control plot remained untreated. Samples of the Pre-harvest Interval (PHI) trial were collected 45 days after last application (DALA). Samples of the decline trials were collected 40, 45, 50 and 55 DALA. For each trial samples of grains, rice with hulls and rice without hulls, polished rice and straw were harvested.

All specimens were analysed for pyraclostrobin and its metabolite 500M07 using BASF Method No. 535/1 (HPLC-MS/MS). The results of procedural recovery experiments obtained with the analytical series averaged at 86% for pyraclostrobin and 85% for 500M07 in rice grain with hulls (paddy and upland rice), at 89% for pyraclostrobin and 85% for 500M07 in rice straw (paddy and upland rice), at 85% for pyraclostrobin and 87% for 500M07 in rice grain without hulls (paddy and upland rice) and at 87% for pyraclostrobin and 86% for 500M07 in polished grain (paddy and upland rice). For both crops, fortification levels of 0.01 and 1.0 mg/kg were determined.

During the 2013–2014 growing season in China, Taiwan Province of China, India Indonesia, Philippines and Vietnam a total of ten field trials were conducted to determine the magnitude of the residues of pyraclostrobin (BAS 500 F) in representative locations of rice in the pacific region (DocID 2015/1076333). Each trial consisted of an untreated control plot and one treated plot at the maximum label rate. At each location, the treated rice plot received two broadcast foliar applications of BAS 500 23 F (100 g/L, CS) at 0.100 kg ai/ha of pyraclostrobin, the maximum label rate. The first application was made at target BBCH 49 (flag leaf sheath open), and the second application was made at target BBCH 65 (full flowering). Samples of whole plants (without the roots) were harvested at DALA 0 from each plot. Additionally, at BBCH 75, whole plants (without the roots) including panicles were collected from single trials (A, B, E and F). At BBCH 89 (rice maturity) whole plants (no roots), panicles, rest of the plant (no roots), straw, grain with husks, hulls, brown rice, bran and milled rice were taken.

All specimens were analysed for pyraclostrobin and its metabolite 500M07 using BASF Method No. 535/1 (L0076/01). The method has a limit of quantitation of 0.01 mg/kg for both analytes. The final determination of pyraclostrobin and 500M07 is performed by HPLC-MS/MS. Procedural recoveries were conducted using control samples fortified at 0.010 and 0.100 mg/kg. For bran samples additional concurrent recoveries were fortified at 1.0 mg/kg; for grain with husks, panicles and rest of plant samples additional concurrent recoveries were fortified at 1.50 mg/kg; for hulls and straw samples additional concurrent recoveries were fortified at 3.00 mg/kg and for whole plant samples additional concurrent recoveries were fortified at 4.00 mg/kg due to higher residues detected. The procedural recoveries in whole plants (no roots) averaged 92.7% (n=20) for pyraclostrobin and 90.9% (n=18) for 500M07. For panicles the recoveries averaged 91.6% (n=11) for pyraclostrobin and 88.6% (n=11) for 500M07, whereas in the rest of the plant (no root) a mean of 90.9% (n=13) for pyraclostrobin and 89.8% (n=13) for 500M07 was recovered. In straw the recoveries averaged 90.1% (n=16) for pyraclostrobin and 78.8% (n=16) for 500M07. For grain with husks the following means were determined: 86% (n=16) for pyraclostrobin and 81.6% (n=16) for 500M07. The mean recoveries in hulls were 95.7% (n=16) for pyraclostrobin and 88.4% (n=16) for 500M07; whereas for brown rice the means were 91% (n=14) for pyraclostrobin and 90% (n=14)

for 500M07. For bran, the mean recoveries were 85.7% (n=18) for pyraclostrobin and 77.3% (n=18) for 500M07. The recoveries in milled rice averaged 87.6% (n =12) for pyraclostrobin and 86.0% (n=12) for 500M07.

During the 2014 growing season, a total of six field trials were conducted in representative growing areas for rice (paddy) in Greece, Italy and Spain in order to determine the residue level of pyraclostrobin (BAS 500 F) after two applications of BAS 500 23 F (DocID 2014/1262185). The test item BAS 500 23 F (100 g/L of pyraclostrobin), a capsule suspension (CS), was foliar applied on rice (paddy) twice (BBCH 49 and BBCH 65) at a rate of 0.1 kg pyraclostrobin/ha with a water volume of 150–500 L/ha depending on local practice. Each field trial consisted of one untreated plot (plot 1) and one treated plot (plot 2). Specimens of rice whole plants (no roots) were taken immediately before the last application from the untreated (plot 1) and after the last application from the treated (plot 2) at a growth stage of BBCH 65. Specimens of rice panicles and rest of plants without roots were taken at the growth stages of BBCH 75 and BBCH 83. At the growth stage of BBCH 89, specimens of rice grain with husks and straw were collected; in addition at this stage, additional specimens of rice grain with husks were collected to be processed (after a drying period) into specimens of rice hulls, brown rice, bran and milled rice. All specimens were analysed for pyraclostrobin and its metabolite 500M07 using BASF method no. L0076/01 (535/1). The method has a limit of quantitation (LOQ) of 0.01 mg/kg for all analytes. The analytes were extracted from the homogenised plant materials with a mixture of methanol, water and hydrochloric acid. An aliquot of the extract is centrifuged and partitioned at alkaline conditions against cyclohexane. The final determination of pyraclostrobin and 500M07 is performed by HPLC-MS/MS. The results of procedural recovery experiments obtained with the analytical series averaged 92.3% for pyraclostrobin and 91.3% for 500M07 in whole plant (no roots), 87.3% for pyraclostrobin and 87.7% for 500M07 in panicles, 96% for pyraclostrobin and 94.2% for 500M07 in rest of plant (without roots), 97% for pyraclostrobin and 95.7% for 500M07 in grain with husks, 99.3% for pyraclostrobin and 94.1% for 500M07 in straw, 92.9% for pyraclostrobin and 88.8% for 500M07 in hulls, 101% for pyraclostrobin and 103% for 500M07 in brown rice, 91.0% for pyraclostrobin and 83.9% for 500M07 in bran, and 88.3% for pyraclostrobin and 99.6% for 500M07 in milled rice. Acceptable accuracy was demonstrated for the method, with recoveries between 80 and 110% for each fortification level in paddy rice.

Table 61 Results of residue trials with pyraclostrobin conducted in rice (according to critical GAP), foliar application

CROP Country, Year Location (variety) Trial No.	Application				PHI [d] / BBCH	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]
	Formu-lation	Method	Rate [kg ai/ha]	Spray volume [L/ha]					
cGAP: 2×0.1, PHI not required									
Brazil 2013 Santa Cruz do Sul / RS G130017	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	100	45	grain with hulls	0.20	0.04	0.24
					45	grain w/o hulls	< 0.01	< 0.01	< 0.02
					45	polished grain	< 0.01	< 0.01	< 0.02
					45	straw	1.74*	0.27	2.03
					45	grain with hulls	0.20	0.04	0.24
Brazil 2013 Venâncio Aires / RS G130018	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	100	40	grain with hulls	0.26	0.05	0.31
					45	grain with hulls	0.28	0.07	0.36
					50	grain with hulls	0.23	0.06	0.29
					55	grain with hulls	0.17	0.04	0.21
					40	grain w/o hulls	< 0.01	< 0.01	< 0.02
					45	grain w/o hulls	< 0.01	< 0.01	< 0.02
					50	grain w/o hulls	< 0.01	< 0.01	< 0.02
					55	grain w/o hulls	< 0.01	< 0.01	< 0.02
					40	polished grain	< 0.01	< 0.01	< 0.02
					45	polished grain	< 0.01	< 0.01	< 0.02
					50	polished grain	< 0.01	< 0.01	< 0.02
					55	polished grain	< 0.01	< 0.01	< 0.02
					40	straw	0.60	0.09	0.70
					45	straw	0.50	0.09	0.60
					50	straw	0.64	0.10	0.75
					55	straw	0.76	0.09	0.86
Brazil 2013 Paraiso do Sul / RS G130019	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	100	40	grain with hulls	0.21	0.05	0.26
					45	grain with hulls	0.31	0.07	0.39
					50	grain with hulls	0.32	0.09	0.42
					55	grain with hulls	0.26	0.05	0.31
					40	grain w/o hulls	0.01	< 0.01	0.02
					45	grain w/o hulls	0.01	< 0.01	0.02
					50	grain w/o hulls	0.01	< 0.01	0.02
					55	grain w/o hulls	< 0.01	< 0.01	< 0.02
					40	polished grain	< 0.01	< 0.01	< 0.02
					45	polished grain	< 0.01	< 0.01	< 0.02

CROP Country, Year Location (variety) Trial No.	Application				PHI [d] / BBCH	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]
	Formu-lation	Method	Rate [kg ai/ha]	Spray volume [L/ha]					
					50	polished grain	< 0.01	< 0.01	< 0.02
					55	polished grain	< 0.01	< 0.01	< 0.02
					40	straw	0.46	0.06	0.52
					45	straw	0.49	0.08	0.58
					50	straw	0.43	0.06	0.49
					55	straw	0.40	0.05	0.45
Brazil 2013 Vera Cruz / RS G130020	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	100	40	grain with hulls	0.31*	0.05*	0.36
					45	grain with hulls	0.38*	0.07*	0.46
					50	grain with hulls	0.31*	0.05*	0.36
					55	grain with hulls	0.25*	0.05*	0.30
					40	grain w/o hulls	0.02	< 0.01	0.03
					45	grain w/o hulls	0.01	< 0.01	0.02
					50	grain w/o hulls	0.02	< 0.01	0.03
					55	grain w/o hulls	0.02	< 0.01	0.03
					40	polished grain	< 0.01	< 0.01	< 0.02
					45	polished grain	< 0.01	< 0.01	< 0.02
					50	polished grain	< 0.01	< 0.01	< 0.02
					55	polished grain	< 0.01	< 0.01	< 0.02
					40	straw	0.75	0.09	0.85
					45	straw	0.72	0.09	0.82
					50	straw	0.76	0.09	0.86
					55	straw	0.66	0.09	0.76
Brazil 2013 Roseira / SP G130021	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	100	40	grain with hulls	0.78*	0.32*	1.11
					45	grain with hulls	0.33	0.12	0.46
					50	grain with hulls	0.03	0.01	0.04
					55	grain with hulls	0.01	< 0.01	0.02
					40	grain w/o hulls	0.02	< 0.01	0.03
					45	grain w/o hulls	0.04	0.01	0.05
					50	grain w/o hulls	< 0.01	< 0.01	< 0.02
					55	grain w/o hulls	< 0.01	< 0.01	< 0.02
					40	polished grain	< 0.01	< 0.01	< 0.02
					45	polished grain	< 0.01	< 0.01	< 0.02
					50	polished grain	< 0.01	< 0.01	< 0.02
					55	polished grain	< 0.01	< 0.01	< 0.02
					40	straw	1.79	0.32	2.11
					45	straw	1.43	0.34	1.77
					50	straw	0.67	0.15	0.83
					55	straw	0.16	0.03	0.19
Brazil 2013 Senador Canedo / GO G130022	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	100	40	grain with hulls	0.18	0.05	0.23
					45	grain with hulls	0.17	0.04	0.21
					50	grain with hulls	0.08	0.02	0.10
					55	grain with hulls	0.05	< 0.01	0.06
					40	grain w/o hulls	0.01	< 0.01	0.02
					45	grain w/o hulls	0.01	< 0.01	0.02
					50	grain w/o hulls	< 0.01	< 0.01	< 0.02
					55	grain w/o hulls	< 0.01	< 0.01	< 0.02
					40	polished grain	< 0.01	< 0.01	< 0.02
					45	polished grain	< 0.01	< 0.01	< 0.02
					50	polished grain	< 0.01	< 0.01	< 0.02
					55	polished grain	< 0.01	< 0.01	< 0.02
					40	straw	0.34	0.04	0.38
					45	straw	0.36	0.05	0.41
					50	straw	0.35	0.04	0.39
					55	straw	0.23	0.03	0.26
Brazil 2013 Santo Antônio de Posse / SP G130024	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	100	40	grain with hulls	0.60	0.07	0.68
					45	grain with hulls	0.24	0.03	0.27
					50	grain with hulls	0.08	0.02	0.10
					55	grain with hulls	< 0.01	< 0.01	< 0.02
					40	grain w/o hulls	0.06	< 0.01	0.07
					45	grain w/o hulls	0.03	< 0.01	0.04

CROP Country, Year Location (variety) Trial No.	Application				PHI [d] / BBCH	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]
	Formu-lation	Method	Rate [kg ai/ha]	Spray volume [L/ha]					
					50	grain w/o hulls	< 0.01	< 0.01	< 0.02
					55	grain w/o hulls	< 0.01	< 0.01	< 0.02
					40	polished grain	< 0.01	< 0.01	< 0.02
					45	polished grain	< 0.01	< 0.01	< 0.02
					50	polished grain	< 0.01	< 0.01	< 0.02
					55	polished grain	< 0.01	< 0.01	< 0.02
					40	straw	0.79	0.05	0.84
					45	straw	0.66	0.04	0.70
					50	straw	0.54	0.07	0.62
					55	straw	0.20	0.03	0.23
Vietnam 2013 My Tho / Tien Gang (IR50404) A	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	0	Whole plant (no root)	3.260	0.209	3.469
					75	panicles	0.643	0.124	0.767
					75	Rest of plant no roots	2.810	0.389	3.199
					89	straw	0.013	<0.01	0.023
					89	Grain with husks	0.604	0.161	0.765
					89	hulls	2.650	0.690	3.340
					89	brown rice	0.032	<0.01	0.042
					89	bran	0.206	0.043	0.249
					89	milled rice	0.016	<0.01	0.026
Vietnam 2014 Tan Hoi Village / Cai Lay District (IR50404) B	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	0	Whole plant (no root)	2.930	0.146	3.076
					75	panicles	0.268	0.035	0.303
					75	Rest of plant no roots	0.740	0.079	0.819
					89	straw	2.220	0.342	2.562
					89	Grain with husks	0.169	0.031	0.200
					89	hulls	0.739	0.181	0.974
					89	brown rice	0.042	<0.01	0.052
					89	bran	0.226	0.026	0.252
					89	milled rice	0.016	<0.01	0.026
Indonesia 2013 Klaten / Central Java (Situ Bagendit) C	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	0	Whole plant (no root)	1.920	0.034	1.958
					89	straw	0.821	0.129	0.950
					89	Grain with husks	0.063	0.013	0.076
					89	hulls	0.138	0.033	0.171
					89	brown rice	<0.01	<0.01	<0.02
					89	bran	0.036	<0.01	0.046
					89	milled rice	<0.01	<0.01	<0.02
Indonesia 2013 Klaten / Central Java (Situ Bagendit) D	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	0	Whole plant (no root)	2.90	0.129	3.029
					89	straw	2.190	0.494	2.684
					89	Grain with husks	0.486	0.146	0.632
					89	hulls	1.250	0.447	1.697
					89	brown rice	0.037	0.01	0.047
					89	bran	0.327	0.063	0.390
					89	milled rice	0.020	<0.01	0.03
Philippines 2013 Cabanatuan City / Nueva Ecija (NSIC Rc222) E	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	0	Whole plant (no root)	1.910	0.073	1.983
					75	panicles	1.200	0.133	1.333
					75	Rest of plant no roots	2.320	0.292	2.612
					89	straw	2.690	0.613	3.303
					89	Grain with husks	0.454	0.127	0.581
					89	hulls	1.460	0.465	1.925
					89	brown rice	0.056	0.011	0.067
					89	bran	0.291	0.055	0.346
					89	milled rice	0.017	<0.01	0.027
Philippines 2013 Cabanatuan City / Nueva Ecija (NSIC Rc222) F	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	0	Whole plant (no root)	2.610	0.164	2.774
					75	panicles	0.683	0.101	0.784
					75	Rest of plant no roots	0.544	0.088	0.632
					89	straw	0.402	0.076	0.478
					89	Grain with husks	0.084	0.015	0.099
					89	hulls	0.282	0.056	0.338
					89	brown rice	0.017	<0.01	0.027
					89	bran	0.080	0.016	0.096
					89	milled rice	<0.01	<0.01	<0.02

CROP Country, Year Location (variety) Trial No.	Application				PHI [d] / BBCH	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]
	Formu-lation	Method	Rate [kg ai/ha]	Spray volume [L/ha]					
Thailand 2014 Nakhon Pathom / Kamphaeng Saen (Prathum Thani 1) G	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	0	Whole plant (no root)	2.1400	0.1480	2.2880
					89	straw	0.5060	0.1800	0.6860
					89	Grain with husks	0.2560	0.0625	0.3185
					89	hulls	0.5320	0.1460	0.6780
					89	brown rice	0.0374	<0.01	0.0474
					89	bran	0.1310	0.0209	0.1519
					89	milled rice	<0.01	<0.01	<0.02
Taiwan 2014 Taichung City / Daja District (Taichung no.10) H	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	0	Whole plant (no root)	0.947	0.017#	0.964
					89	straw	2.240	0.333	2.573
					89	Grain with husks	0.534	0.100	0.634
					89	hulls	2.350	0.510	2.860
					89	brown rice	0.034	<0.01	0.044
					89	bran	0.177	0.026	0.203
					89	milled rice	0.015	<0.01	0.025
China 2014 Guilin City / Guang Xi (Feng Yuan You299) I	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	0	Whole plant (no root)	0.176	0.018	0.194
					89	straw	<0.01	<0.01	<0.02
					89	Grain with husks	<0.01	<0.01	<0.02
					89	hulls	<0.01	<0.01	<0.02
					89	brown rice	<0.01	<0.01	<0.02
					89	bran	<0.01	<0.01	<0.02
					89	milled rice	<0.01	<0.01	<0.02
India 2014 Medchal / Hyderabad (MTU-1010) J	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	0	Whole plant (no root)	1.870	0.083	1.953
					89	straw	0.349	0.086	0.435
					89	Grain with husks	0.074	0.018	0.092
					89	hulls	0.264	0.076	0.340
					89	brown rice	<0.01	<0.01	<0.02
					89	bran	0.153	0.044	0.197
					89	milled rice	<0.01	<0.01	<0.02
Spain 2014 Badajoz L140417	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	65	Whole plant no roots	2.1	0.12	2.2
					75	Panicles	0.66	0.082	0.74
					75	Rest of plant (no roots)	1.3	0.28	1.6
					83	Panicles	0.27	0.057	0.33
					83	Rest of plant (no roots)	0.90	0.24	1.1
					89	Grain with husks	0.074	0.030	0.10
					89	Straw	0.75	0.25	1.0
					89	Hulls	0.32	0.13	0.45
					89	Brown rice	< 0.01	<0.01	<0.02
					89	Bran	0.027	<0.01	0.037
					89	Milled rice	< 0.01	<0.01	<0.02
Spain 2014 Seville L140418	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	65	Whole plant no roots	2.4	0.15	2.6
					75	Panicles	1.2	0.12	1.3
					75	Rest of plant (no roots)	1.5	0.22	1.8
					83	Panicles	0.63	0.1	0.73
					83	Rest of plant (no roots)	1.5	0.24	1.7
					89	Grain with husks	0.22	0.053	0.27
					89	Straw	1.2	0.28	1.5
					89	Hulls	0.99	0.22	1.2
					89	Brown rice	0.016	< 0.01	0.026
					89	Bran	0.089	0.013	0.10
					89	Milled rice	< 0.01	< 0.01	< 0.02
Italy 2014 Borgo Vercelli L140419	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	65	Whole plant no roots	1.3	0.028	1.4
					75	Panicles	0.52	0.082	0.6
					75	Rest of plant (no roots)	0.62	0.072	0.69
					83	Panicles	0.62	0.11	0.73

CROP Country, Year Location (variety) Trial No.	Application				PHI [d] / BBCH	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg][a]	Total Residue [mg/kg] [b]
	Formu-lation	Method	Rate [kg ai/ha]	Spray volume [L/ha]					
					83	Rest of plant (no roots)	0.81	0.085	0.9
					89	Grain with husks	0.33	0.066	0.4
					89	Straw	0.73	0.087	0.81
					89	Hulls	1.2	0.25	1.4
					89	Brown rice	0.028	<0.01	0.038
					89	Bran	0.17	0.019	0.19
					89	Milled rice	< 0.01	< 0.01	< 0.02
Italy 2014 Olcenengo L140420	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	65	Whole plant no roots	1.1	0.026	1.1
					75	Panicles	0.78	0.16	0.94
					75	Rest of plant (no roots)	0.81	0.090	0.89
					83	Panicles	0.43	0.13	0.56
					83	Rest of plant (no roots)	0.61	0.057	0.66
					89	Grain with husks	0.38	0.11	0.48
					89	Straw	0.89	0.13	1.0
					89	Hulls	1.5	0.43	2.0
					89	Brown rice	0.041	< 0.01	0.051
					89	Bran	0.24	0.039	0.28
					89	Milled rice	< 0.01	< 0.01	< 0.02
Greece 2014 Thessaloniki L140421	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	65	Whole plant no roots	1.2	0.046	1.3
					75	Panicles	0.013	<0.01	0.023
					75	Rest of plant (no roots)	0.25	0.051	0.30
					83	Panicles	<0.01	<0.01	< 0.02
					83	Rest of plant (no roots)	0.27	0.043	0.31
					89	Grain with husks	<0.01	<0.01	< 0.02
					89	Straw	1.5	0.21	1.7
					89	Hulls	0.031	0.010	0.041
					89	Brown rice	<0.01	< 0.01	< 0.02
					89	Bran	<0.01	< 0.01	< 0.02
					89	Milled rice	< 0.01	< 0.01	< 0.02
Greece 2014 Serres L140422	BAS 500 23 F (CS) 100 g/L	foliar	2× 0.100	150-500	65	Whole plant no roots	1.0	0.027	1.1
					75	Panicles	0.011	<0.01	0.021
					75	Rest of plant (no roots)	0.37	0.079	0.44
					83	Panicles	< 0.01	<0.01	< 0.02
					83	Rest of plant (no roots)	0.19	0.052	0.24
					89	Grain with husks	< 0.01	<0.01	< 0.02
					89	Straw	0.93	0.22	1.1
					89	Hulls	0.031	0.014	0.045
					89	Brown rice	< 0.01	< 0.01	< 0.02
					89	Bran	< 0.01	< 0.01	< 0.02
					89	Milled rice	< 0.01	< 0.01	< 0.02

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08), for calculation purposes <0.01 was set to 0.01

* Average value of duplicate

_ underlined values were used for MRL calculation

Grasses for sugar or syrup production

Sugar cane

The intended critical uses of pyraclostrobin in sugar cane as supported by field residue data consists of maximum 5 foliar applications of 0.13 kg ai/ha each. The PHI is 30 days.

During the 2009/2010 growing season four field trials were conducted in different representative sugar cane growing areas in Brazil to determine the residue levels of pyraclostrobin (BAS 500 F) and its metabolite 500M07 (DocIDs 2010/1133483 and 2011/1142282). The test substance BAS 500 01 F (250 g/L pyraclostrobin, EC) was applied one time (in-furrow) and BAS 512 00 F (133 g/L pyraclostrobin and 50 g/L epoxiconazole, SE) was applied five times (foliar) with an application rate of 0.200 kg ai/ha of pyraclostrobin (in-furrow and foliar) and 0.080 kg ai/ha of epoxiconazole (foliar) in a spray solution of 80 L/ha (in-furrow) and 100 L/ha (foliar). For the decline trials, samples of sugar cane were collected at 0, 15, 30 and 45 days after last application (DALA). In the harvest trials, samples were taken at 30 DALA.

During the 2009/2010 growing season four field trials were conducted in different representative sugar cane growing areas in Brazil to determine the residue levels of pyraclostrobin (BAS 500 F) and its metabolite 500M07 (DocIDs 2010/1133485 and 2011/1142284). The test substance BAS 512 14 F (260 g/L pyraclostrobin and 160 g/L epoxiconazole, SC) was applied one time (in-furrow) and five times (foliar) with an application rate of 0.20018 kg ai/ha of pyraclostrobin and 0.12322 kg ai/ha of epoxiconazole in a spray solution of 80 L/ha (in-furrow) and 100 L/ha (foliar). For the decline trials, samples of sugar cane were collected at 0, 15, 30 and 44 days after last application (DALA). In the harvest trials, samples were taken at 30 DALA.

During the 2010 growing season four field trials were conducted in different representative sugar cane growing areas in Brazil to determine the residue levels of pyraclostrobin (BAS 500 F) and its metabolite 500M07 (DocID 2010/1133484 and 2011/1142283). The test substance BAS 500 01 F (250 g/L pyraclostrobin, EC) was applied one time (in-furrow) and BAS 512 14 F (260 g/L pyraclostrobin and 160 g/L epoxiconazole, SC) was applied five times (foliar) with an application rate of 0.200 kg ai/ha of pyraclostrobin (in-furrow and foliar) and 0.123 kg ai/ha of epoxiconazole (foliar) in a spray solution of 80 L/ha (in-furrow) and 100 L/ha (foliar). For the decline trials, samples of sugar cane were collected at 0, 15, 30 and 45 days after last application (DALA). In the harvest trials, samples were taken at 30 DALA.

During the 2011/2012 growing season four field trials were conducted in different representative sugar cane growing areas in Brazil to determine the residue levels of pyraclostrobin (BAS 500 F) and its metabolite 500M07 (DocID 2017/3004117). The test substance BAS 703 02 F (333 g/L pyraclostrobin, 167 g/L fluxapyroxad, SC) was applied one time (in-furrow) and five times (foliar) with an application rate of 0.133 kg ai/ha of pyraclostrobin and 0.0668 kg ai/ha of fluxapyroxad in a spray solution of 80 L/ha (in-furrow) and 100 L/ha (foliar). For the decline trials, samples of sugar cane were collected at 10, 20, 30 and 40 days after last application (DALA). In the harvest trials, samples were taken at 30 DALA.

The samples were analysed with BASF method no. 535/1. The method quantifies the total relevant residues of pyraclostrobin and its metabolite 500M07 with a limit of quantitation (LOQ) of 0.01 mg/kg each in all sample materials. The results of procedural recovery experiments obtained with each analytical series were about 96% (m/z 388-> 194 quantification) and 100% (m/z 388-> 163 confirmatory) for pyraclostrobin and about 102% (m/z 358-> 164 quantification) and 102% (m/z 358-> 132 confirmatory) for 500M07 at fortification levels of 0.01 mg/kg and 1.0 mg/kg.

Table 62 Results of residue trials with pyraclostrobin conducted in sugar cane (according to critical GAP), foliar application

CROP Country, Year Location (variety) Trial No.	Application		PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [b]	Total Residue [mg/kg] [c]	Author Report Year Study No. DocID
	Rate [kg ai/ha][a]	Spray volume [L/ha]						
cGAP: 1× 0.13 infurrow application followed by 5x0.13 kg ai/ha, PHI 30days								
Brazil 2009/2010 Santo Antonio de Posse / SP (SP801816) G090182	1× 0.200 5x 0.284	80 100	0 15 30 45	cane cane cane cane	0.044 0.026 0.033 0.035	<0.01 <0.01 <0.01 <0.01	0.054 0.036 0.043 0.045	Goncalves, F. 2010 362016_2 2011/1142282 2010/1133483
Brazil 2009/2010 Senador Canedo / GO (RB867515) G090183	1× 0.200 5x 0.284	80 100	0 15 30 45	cane cane cane cane	0.025 0.057 0.053 0.047	<0.01 <0.01 0.011 <0.01	0.035 0.067 0.064 0.057	Goncalves, F. 2010 362016_2 2011/1142282 2010/1133483
Brazil 2009/2010	1× 0.200	80	30	cane	0.062	0.013	0.075	Goncalves, F. 2010

CROP Country, Year Location (variety) Trial No.	Application Rate [kg ai/ha][a]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [b]	Total Residue [mg/kg] [c]	Author Report Year Study No. DocID
cGAP: 1× 0.13 infurrow application followed by 5x0.13 kg ai/ha, PHI 30days								
Bandeirantes / PR (RB72454) G090184	5x 0.284	100						362016_2 2011/1142282 2010/1133483
Brazil 2009/2010 Londrina / PR (RB72454) G090185	1× 0.200 5x 0.284	80 100	30 30	cane cane	0.022 0.010*	<0.01	0.032	Goncalves, F. 2010 362016_2 2011/1142282 2010/1133483
Brazil 2009/2010 Santo Antonio de Posse / SP (SP 801816) G090198	1× 0.323 5x 0.323	80 100	0 15 30 45	cane cane cane cane	0.066 0.061 0.062 0.041	0.014 0.011 0.012 <0.01	0.081 0.073 0.075 0.051	Goncalves, F. 2010 356400_1 2011/1142284 2010/1133485
Brazil 2009/2010 Senador Canedo / GO (RB867515) G090199	1× 0.323 5x 0.323	80 100	0 15 30 45	cane cane cane cane	0.017 0.023 0.056 0.053	<0.01 <0.01 <0.01 <0.01	0.027 0.033 0.066 0.063	Goncalves, F. 2010 356400_1 2011/1142284 2010/1133485
Brazil 2009/2010 Bandeirantes / PR (RB72454) G090200	1× 0.323 5x 0.323	80 100	30 30	cane cane	0.11 0.044*	0.019	0.13	Goncalves, F. 2010 356400_1 2011/1142284 2010/1133485
Brazil 2009/2010 Londrina / PR (RB72454) G090201	1× 0.323 5x 0.323	80 100	30 30	cane cane	0.012 <0.01▲	<0.01	0.013	Goncalves, F. 2010 356400_1 2011/1142284 2010/1133485
Brazil 2010 Santo Antonio de Posse / SP (SP 801816) G090186	1× 0.200 5x 0.323	80 100	0 15 30 45	cane cane cane cane	0.041 0.061 0.066 0.042	<0.01 0.011 0.012 <0.01	0.051 0.073 0.079 0.052	Goncalves, F. 2010 362016_3 2011/1142283 2010/1133484
Brazil 2010 Senador Canedo / GO (RB867515) G090187	1× 0.200 5x 0.323	80 100	0 15 30 45	cane cane cane cane	0.038 0.046 0.079 0.014	<0.01 <0.01 0.013 <0.01	0.048 0.056 0.093 0.014	Goncalves, F. 2010 362016_3 2011/1142283 2010/1133484
Brazil 2010 Bandeirantes / PR (RB72454) G090188	1× 0.200 5x 0.323	80 100	30 30	cane cane	0.093 0.037▲	0.010	0.10	Goncalves, F. 2010 362016_3 2011/1142283 2010/1133484
Brazil 2010 Londrina / PR (RB72454) G090189	1× 0.200 5x 0.323	80 100	30 30	cane cane	0.011 <0.01▲	<0.01	0.021	Goncalves, F. 2010 362016_3 2011/1142283 2010/1133484
Brazil	1×	80	10	cane	0.02	<0.01	0.03	Porto, F..

CROP Country, Year Location (variety) Trial No.	Application Rate [kg ai/ha][a]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [b]	Total Residue [mg/kg] [c]	Author Report Year Study No. DocID
cGAP: 1× 0.13 infurrow application followed by 5x0.13 kg ai/ha, PHI 30days								
2011/2012 Santo Antonio de Posse / SP (SP801816) G110037	5x 0.1332	 100	20 30 40	cane cane cane	0.01 0.02 0.02	<0.01 <0.01 <0.01	0.02 0.03 0.03	2014 395383 2017/3004117
Brazil 2011/2012 Senador Canedo / GO (BRS867515) G11038	1× 5x 0.1332	80 100	10 20 30 40	cane cane cane cane	0.02 0.01 0.03 0.01	<0.01 <0.01 <0.01 <0.01	0.03 0.02 0.04 0.02	Porto, F.. 2014 395383 2017/3004117
Brazil 2011/2012 Engenheiro Coelho / SP (SP801816) G110039	1× 5x 0.1332	80 100	30	cane	<0.01	<0.01	<0.02	Porto, F.. 2014 395383 2017/3004117
Brazil 2011/2012 Uberlandia / MG (RB83-5486) G110040	1× 5x 0.1332	80 100	30	cane	<0.01	<0.01	<0.02	Porto, F.. 2014 395383 2017/3004117

PHI = Pre harvest interval

[a] US rates derived from conversion factors: lb/acre (kg/ha x 1.12) and GAP = gal/acre (L/ha x 9.354)

[b] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[c] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

_ underlined values were used for MRL calculation

* = value of proportionality calculation (residue according to an application rate of 0.130 kg ai/ha)

▲the trial is considered as a not independent trial and this value is therefore not used for MRL calculation

Oilseeds

Olives for oil production

The relevant residue trials have been summarised previously in the section on table olives. The intended critical uses of pyraclostrobin in olives for oil production as supported by field residue data consists of maximum 2 foliar applications of 0.1 kg ai/ha each. Harvest timing of olives for oil production is at BBCH 89.

All data for table olives at the PHI of 83–142 days (BBCH 79 - harvest timing of table olives) used for maximum residue level estimation were underlined and bolded. When higher residues occurred at later sampling intervals than the proposed PHI, these residue values were taken. In case of replicate values for the same sample, the average value was used for maximum residue level estimation.

Table 63 Results of residue trials with pyraclostrobin conducted in table olive (according to critical GAP), foliar application

CROP Country, Year Location (variety) Trial No.	Application Rate [kg ai/ha]	Application Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg] [a]	Residue 500M07 [mg/kg] [a b]	Total Residue [mg/kg] [a c]	Author Report Year Study No. DocID
cGAP: 2×0.1, The PHI is determined by the growth stage at last application (BBCH 71)								
Spain 2011 Turis (Manzanilla) L110411	2× 0.100	1000	0 105 Residues calculated in/as whole olive fruits: 0 105	Whole fruit Fruit w/o stones Whole fruit Whole fruit*	0.62 <0.01 0.62 <0.01	<0.01 <0.01 <0.01 <0.01	0.63 <0.02 0.63 <0.02	Schaeufele, M. 2012 400808 2012/1143392
Spain 2011 Pabla de Vallbona (Villalonga) L110412	2× 0.100	1000	0 104 Residues calculated in/as whole olive fruits: 0 104	Whole fruit Fruit w/o stones Whole fruit Whole fruit*	0.52 <0.01 0.52 <0.01	<0.01 <0.01 <0.01 <0.01	0.53 <0.02 0.53 <0.02	Schaeufele, M. 2012 400808 2012/1143392
Italy 2011 Orta Nova (Leccino) L110413	2× 0.100	1000	0 92 Residues calculated in/as whole olive fruits: 0 92	Whole fruit Fruit w/o stones Whole fruit Whole fruit*	0.77 <0.01 0.77 <0.01	0.016 <0.01 0.016 <0.01	0.78 <0.02 0.078 <0.02	Schaeufele, M. 2012 400808 2012/1143392
Greece 2011 Nea Skioni (Chondroelia Chalkidikis) L110414	2× 0.100	1000	0 83 Residues calculated in/as whole olive fruits: 0 83	Whole fruit Fruit w/o stones Whole fruit Whole fruit*	1.4 <0.01 1.4 <0.01	0.011 <0.01 0.011 <0.01	1.4 <0.02 1.4 <0.02	Schaeufele, M. 2012 400808 2012/1143392
Spain 2012 41620 Seville (Hojiblanca) L120296	2× 0.100	1000	0 105 Residues calculated in/as whole olive fruits: 0 105	Whole fruit Fruit w/o stones Whole fruit Whole fruit**	0.76 <0.01 0.76 <0.01	0.013 <0.01 0.013 <0.01	0.77 <0.02 0.77 <0.02	Galvez, O. 2013 400810 2013/1078066 2017/1115705
Spain 2012 41540 Seville (Hojiblanca) L120297	2× 0.100	1000	0 105 Residues calculated in/as whole olive fruits: 0 105	Whole fruit Fruit w/o stones Whole fruit Whole fruit**	0.90 <0.01 0.90 <0.01	0.017 <0.01 0.017 <0.01	0.92 <0.02 0.92 <0.02	Galvez, O. 2013 400810 2013/1078066 2017/1115705
Italy 2012 Taranto (Bella di Cerignola) L120298	2× 0.100	1000	0 90 Residues calculated in/as whole olive fruits: 0 90	Whole fruit Fruit w/o stones Whole fruit Whole fruit**	0.29 <0.01 0.29 <0.01	<0.01 <0.01 <0.01 <0.01	0.30 <0.02 0.30 <0.02	Galvez, O. 2013 400810 2013/1078066 2017/1115705
Greece 2012 Chalkidiki (Chontroelia Chalkidikis) L120299	2× 0.100	1000	0 90 Residues calculated in/as whole olive fruits: 0 90	Whole fruit Fruit w/o stones Whole fruit Whole fruit**	0.81 <0.01 0.81 <0.01	0.025 <0.01 0.025 <0.01	0.83 <0.02 0.83 <0.02	Galvez, O. 2013 400810 2013/1078066 2017/1115705
Italy 2011 Bari (Coratina) I150	1 x 0.100	1000	0 135	Whole fruit Whole fruit	0.66 <0.01	<0.01 <0.01	0.67 <0.02	Miserochi, G. 2011 400808_1 2012/1166150
Italy 2011 Bari (Cima di Melfi) I151	1 x 0.100	1000	0 142	Whole fruit Whole fruit	0.58 <0.01	<0.01 <0.01	0.59 <0.02	Miserochi, G. 2011 400808_1 2012/1166150
Italy 2011 Bari (Ogliarola) I152	1 x 0.100	1000	0 109	Whole fruit Whole fruit	0.12 <0.01	<0.01 <0.01	0.12 <0.02	Miserochi, G. 2011 400808_1 2012/1166150

CROP Country, Year Location (variety) Trial No.	Application Rate [kg ai/ha]	 Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg] [a]	Residue 500M07 [mg/kg] [a b]	Total Residue [mg/kg] [a c]	Author Report Year Study No. DocID
cGAP: 2×0.1, The PHI is determined by the growth stage at last application (BBCH 71)								
Italy 2011 Brindisi (Leccino) I153	1 x 0.100	1000	0 130	Whole fruit Whole fruit	0.14 0.012	<0.01 <0.01	0.14 0.022	Miserochi, G. 2011 400808_1 2012/1166150

[a] Values between 0.003 and 0.01 mg/kg are reported as <0.01 mg/kg

[b] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[c] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08), for calculation purposes <0.02 was set to 0.02;

_ underlined values indicate highest residues values of samples representing commercial harvest time

* Residues calculated in/as whole olive fruits (due to the fact that for the specimens from plot 2 collected at PHI = 83-105 days residue values were only determined for fruits without stones; re-calculation was based on the assumption that no residues of pyraclostrobin are to be found in olive stones)

The following values for "weight of flesh/(weight of flesh + weight of stones)" are supplied in the study report (plot 2):

L110411: 0.660, L110412: 0.480, L100413: 0.562, L110414: 0.697

** Residues calculated in/as whole olive fruits (due to the fact that for the specimens from plot 2 collected at PHI=90-105 days residue values were only determined for fruits without stones; re-calculation was based on the assumption that no residues of pyraclostrobin are to be found in olive stones)

The following values for "weight of flesh/(weight of flesh + weight of stones)" are supplied in the study report (plot 2, mean of 2 values each): L120296: 0.56, L120297: 0.69, L120298: 0.39, L120299: 0.28

Seed for beverages and sweets

Cacao beans

The intended critical use of pyraclostrobin in cacao beans as supported by field residue data consists of maximum 3 foliar applications of 0.2 kg ai/ha each. The PHI is 14 days.

During the 2011 growing season, a total of four field trials in Cocoa (beans) were conducted in Brazil to determine the magnitude at harvest and the decline of the residues of pyraclostrobin (DocIDs 2011/3009183 and 2011/3006623). Each trial consisted of two plots. For plot 2, the formulation BAS 512 00 F (SE, 133 g/L pyraclostrobin and 50 g/L BAS 480 F) was foliar applied four times at a rate of 0.200 kg ai/ha for pyraclostrobin in a spray volume of 400 L/ha using motorised costal. Application timings were 97–104, 66–74, 29–44 and 7–14 days before harvest (DBH). Plot 1 remained untreated. In all applications were used adjuvant ASSIST 0.5 L/ha.

The specimens were taken from at least from 4 different plants growing in the plot, excluding the extremities. Control specimens (untreated plot) were collected before the treated specimens. Pods were opened; seeds were taken and were put to fermentation. Following fermentation the beans were separated and placed into a freezer. Duplicate samples were collected from each treatment for analyses as a backup. Control specimens (untreated) and treated specimens were kept separate, in a suitable place, all the time. The samples were frozen immediately.

All specimens were analysed for pyraclostrobin and its metabolite 500M07 using BASF method no. 535/1. The results of procedural recovery experiments obtained with the analytical series averaged at 83% (at transition ions m/z = 388 –194) and 86% (at transition ions m/z = 388 –163) for pyraclostrobin and 80% (at transition ions m/z = 358 –164) and 82% (at transition ions m/z = 358 –132) for 500M07 at fortification levels of 0.01 and 1.0 mg/kg.

For pyraclostrobin and 500M07, the treated samples are valid for a period of 19 months, from harvest date, according the results of the stability study 66414.

Table 64 Results of residue trials with BAS 512 00 F (SE) conducted in cacao (according to critical GAP), foliar application

Country Year Location (variety) Trial No.	Application				PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
	Formu-lation	Method	Rate [kg ai/ha]	Spray volume [L/ha]						
cGAP: 3x 0.2 g ai/ha, PHI 14days										
Brazil 2011 Bahia (CCN51) G100431	BAS 512 00 F (SE) 133 g/L	foliar	4x 0.200	400	7 14 21	Bean Bean Bean	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	<0.02 <0.02 <0.02	Ferreira M. 2011 374970 2011/3009183 2011/3006623
Brazil 2011 Pernambuco (CCN51) G100432	BAS 512 00 F (SE) 133 g/L	foliar	4x 0.200	400	7 14 21	Bean Bean Bean	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	<0.02 <0.02 <0.02	Ferreira M. 2011 374970 2011/3009183 2011/3006623
Brazil 2011 Espírito Santo (Forasteiro) G100433	BAS 512 00 F (SE) 133 g/L	foliar	4x 0.200	400	14	Bean	<0.01	<0.01	<0.02	Ferreira M. 2011 374970 2011/3009183 2011/3006623
Brazil 2011 Espírito Santo (Forasteiro) G100434	BAS 512 00 F (SE) 133 g/L	foliar	4x 0.200	400	14	Bean	<0.01	<0.01	<0.02	Ferreira M. 2011 374970 2011/3009183 2011/3006623

1) Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

2) Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

_ underlined values were used for MRL calculation

Teas

The intended critical uses of pyraclostrobin in tea as supported by field residue data consists of maximum 2 foliar applications of 0.136 kg ai/ha each. The PHI is 7 days.

In China, Taiwan Province of China, India and Japan eight field trials were conducted in fresh tea leaves, dried leaves (green tea leaves), black tea and black tea processed products in 2014 after two spray applications of BAS 516 05 F (WG containing a nominal rate of 0.272 kg ai/ha boscalid and 0.136 kg ai/ha pyraclostrobin) in 2014 and 2015 (DocID 2015/1086962). At each location, the treated tea plots received two broadcast foliar applications of BAS 516 05 F at a rate of 0.136 kg ai/ha of pyraclostrobin. The first applications were made at a target 21 day PHI (BBCH 40–43), and the second applications were made at a target 14 day PHI (BBCH 42–43). Both applications were made using knapsack sprayers with a spray volume of 2000–4000 L/ha. At target 0, 7, 14 and 21 days after the last application (DALA) on all eight trials, a sample of tea leaves were harvested from each plot for fresh leave samples. At day 12–15 PHI only, fresh leaves were collected for dried leaves (green tea) production. Field samples were frozen within 12 hours of collection.

Residues of pyraclostrobin and its metabolite 500M07 (BF 500-3) in fresh tea leaves, dried leaves (green tea) and black tea were quantitated by LC/MS/MS using the technical procedure outlined in BASF Method Number 535/1 (L0076/01). The method limit of detection (LOD) and limit of quantitation (LOQ) for residues of pyraclostrobin and 500M07 were 0.002 mg/kg and 0.010 mg/kg, respectively. The LOQ of 500M07 expressed as parent equivalent is 0.011 mg/kg (conversion factor 1.08392).

Table 65 Results of residue trials with BAS 516 05 F (WG) conducted in tea (according to critical GAP), foliar application

Country Year Location (variety) Trial No.	Application Formu-lation	Method	Rate [kg ai/ha]	Spray volume [L/ha]	PHI [d]	Sample material	Residue BAS 500 F [mg/kg]	Residue 500M07 [mg/kg] [a]	Total Residue [mg/kg] [b]	Author Report Year Study No. DocID
cGAP: 2×0.138, PHI 7 days										
China 2014 Guilin City (Fuding Dahao #2) L140320	BAS 516 05 F (WG) 68 g/kg	foliar	2× 0.136	2000-4000	0 6 13 13 21	Fresh leaves Fresh leaves Fresh leaves Green tea Fresh leaves	4.1 0.62 < 0.01 1.0 0.049	0.082 0.07 < 0.011 0.12 <0.011	4.2 0.69 <0.021 1.1 0.06	Lenz 2014 715205 2015/1086962
China 2014 Guilin City (Fuyun #6) L140321	BAS 516 05 F (WG) 68 g/kg	foliar	2× 0.136	2000-4000	0 8 14 14 22	Fresh leaves Fresh leaves Fresh leaves Green tea Fresh leaves	4.4 0.33 < 0.01 0.64 0.011	0.025 0.02 < 0.011 0.032 < 0.011	4.4 0.35 <0.021 0.67 0.022	Lenz 2014 715205 2015/1086962
India 2015 Valparai (UPASI-3) L140322	BAS 516 05 F (WG) 68 g/kg	foliar	2× 0.136	2000-4000	0 7 15 15 22	Fresh leaves Fresh leaves Fresh leaves Green tea Fresh leaves	4.8 1.2 0.26 1.3 0.065	0.36 0.22 0.028 0.16 < 0.011	5.2 1.42 0.29 1.46 0.076	Lenz 2014 715205 2015/1086962
India 2015 Valparai (UPASI-9) L140323	BAS 516 05 F (WG) 68 g/kg	foliar	2× 0.136	2000-4000	0 7 15 15 22	Fresh leaves Fresh leaves Fresh leaves Green tea Fresh leaves	7.8 3.2 0.3 1.4 0.081	0.30 0.42 0.042 0.21 0.012	8.1 3.62 0.34 1.61 0.093	Lenz 2014 715205 2015/1086962
Japan 2014 Oita City (SAEMIDORI) L140324	BAS 516 05 F (WG) 68 g/kg	foliar	2× 0.136	2000-4000	0 7 15 15 21	Fresh leaves Fresh leaves Fresh leaves Green tea Fresh leaves	14 1.8 0.85 2.5 0.53	0.42 0.18 0.073 0.24 0.061	14 2.0 0.92 2.74 0.59	Lenz 2014 715205 2015/1086962
Japan 2014 Oita City (YABUKITA) L140325	BAS 516 05 F (WG) 68 g/kg	foliar	2× 0.136	2000-4000	0 7 15 15 21	Fresh leaves Fresh leaves Fresh leaves Green tea Fresh leaves	17 1.7 0.88 2.4 0.57	0.44 0.13 0.062 0.29 0.046	17 1.83 0.94 2.7 0.62	Lenz 2014 715205 2015/1086962
Taiwan Province of China 2014 Chiayi City (Ching Shin Oolong) L140326	BAS 516 05 F (WG) 68 g/kg	foliar	2× 0.136	2000-4000	0 7 12 12 21	Fresh leaves Fresh leaves Fresh leaves Green tea Fresh leaves	4.3 2.2 2.1 5.3 0.85	0.13 0.28 0.30 0.57 0.13	4.4 2.5 2.4 5.9 1.0	Lenz 2014 715205 2015/1086962
Taiwan Province of China 2014 Chiayi City (Taiwan No.27) L140327	BAS 516 05 F (WG) 68 g/kg	foliar	2× 0.136	2000-4000	0 7 12 12 21	Fresh leaves Fresh leaves Fresh leaves Green tea Fresh leaves	5.1 3.2 2.9 5.8 0.89	0.08 0.23 0.24 0.54 0.075	5.2 3.43 3.14 6.34 1.0	Lenz 2014 715205 2015/1086962

[a] Residues for the metabolite 500M07 are reported in parent equivalents (conversion factor is 1.08).

[b] Sum of pyraclostrobin and 500M07 as parent equivalent (conversion factor is 1.08)

FATE OF RESIDUES IN STORAGE AND PROCESSING

The Meeting received additional information on high temperature hydrolysis of pyraclostrobin and the fate of pyraclostrobin residues during the processing of apple, olive, pea, pineapple, rice, spinach, sugar cane and tea.

Relevant information on residues in storage for food of plant and animal origin has been evaluated in 2004 JMPR. No new studies have been provided. In 2004 JMPR, an interim report on storage stability in plant matrices was evaluated; it covered a storage period of 18 months (19 months for peanut nutmeat and oil samples). For completion purposes, the final report is summarised below. As required by the relevant OECD guideline, data for stored samples were re-calculated. A comparison between

the recovery corrected and the uncorrected values indicate that lower recoveries in stored samples are rather caused by variability of the method than actual instability of pyraclostrobin residues in sample matrices.

The deep freeze stability of pyraclostrobin and 500M07 in various plant samples is currently under investigation over a period of two years (Abdel-Baky and Riley, 1999). Untreated samples were fortified with 1.0 mg/kg pyraclostrobin and 500M07 and stored under the usual storage conditions for field samples (polyethylene bottle, -20 °C). The samples were analysed with BASF method no. 421/0. Samples have been analysed after 1, 3, 6, 14 and 18 months frozen storage (<-10 °C). The results are given in Table 66. The results obtained from the stored fortified samples indicate that pyraclostrobin and 500M07 residues are stable frozen in peanut nutmeat and oil for at least 19 months and in wheat (grain and straw), sugar beets (tops and roots), tomatoes and grape juice for at least 25 months. The table below presents a summary of the recoveries from the stored fortified samples, corrected for procedural recoveries.

Table 66 Storage stability of pyraclostrobin and 500M07 in plant matrices

Matrix	Average Relative Recovery [a] (%)						
	0 month	1 month	3 months	6- months	14 months	18 months [b]	25 months
Pyraclostrobin							
Peanut nutmeat	92	96	90	91	95	88	--
Peanut oil	105	92	102	118	101	106	--
Wheat grain	105	92	87	91	82	88	90
Wheat straw	93	96	96	113	71	99	100
Sugar beet tops	103	100	97	100	91	98	99
Sugar beet roots	92	94	92	96	78	91	79
Tomatoes	104	98	96	90	91	96	95
Grape juice	91	96	94	96	69	88	80
500M07							
Peanut nutmeat	94	96	112	92	92	84	--
Peanut oil	104	92	102	122	103	120	--
Wheat grain	101	90	86	86	79	89	83
Wheat straw	90	91	99	104	63	97	100
Sugar beet tops	103	101	99	99	93	99	107
Sugar beet roots	87	97	97	94	78	91	76
Tomatoes	103	98	97	85	85	92	89
Grape juice	92	95	92	94	80	93	89

[a] Average Relative Recovery = Average Stored Recovery / Average Procedural Recovery *100

[b] For peanut nutmeat and oil samples, the longest storage interval used was 19 months

Table 67 Storage stability of pyraclostrobin and 500M07 in plant matrices

Matrix	Average Recovery (%) in stored samples as measured						
	0 month	1 month	3 months	6 months	14 months	18 months	25 months
Pyraclostrobin							
Peanut nutmeat	72	97	82	62	61	77	n.a. [a]
Peanut oil	87	99	109	91	90	92	n.a. [a]
Wheat grain	90	89	80	84	61	88	91
Wheat straw	80	108	76	93	36	90	82
Sugar beet tops	108	94	97	87	69	86	79
Sugar beet roots	100	90	89	74	44	82	70
Tomatoes	100	97	103	84	73	90	79
Grape juice	114	78	96	72	55	86	68
500M07 (synonym: BF 500-3)							
Peanut nutmeat	67	99	89	66	54	72	n.a. [a]
Peanut oil	80	98	94	91	77	86	n.a. [a]
Wheat grain	88	82	69	79	52	88	70
Wheat straw	98	101	67	84	33	87	72
Sugar beet tops	122	93	88	85	59	84	79
Sugar beet roots	119	91	88	68	39	82	68
Tomatoes	97	96	98	77	62	87	73
Grape juice	101	69	93	74	57	90	84

[a] For peanut nutmeat and oil samples, the longest storage interval used was 19 months.

This storage stability study demonstrates that residues of pyraclostrobin and 500M07 are stable for up to 25 months in the following frozen raw agricultural and processed commodities: wheat grain and straw, sugar beet roots and tops, tomatoes and grape juice. In addition, the frozen stability of pyraclostrobin and its metabolite have been demonstrated for up to 19 months in peanut nutmeats and oil; peanut matrices were not analysed at the 25-month sampling interval. The pyraclostrobin and 500M07 residues remained consistent from time 0 up to the last analysis time period at 25 months in all plant matrices.

High-temperature hydrolysis

The hydrolytic degradation of pyraclostrobin was investigated at high temperatures in an olive oil / water mixture to simulate the process of olive oil raffination (deodorisation step from raw oil to refined oil) (Hueben M., 2014 a, 2014/1136542). The study was performed with ^{14}C-pyraclostrobin labelled at the chlorophenyl or at the tolyl ring.

The test substance was applied into a mixture of olive oil and aqueous sodium chloride solution (ratio 2:1) at a rate of 1 mg/ml and heated up to 190 ± 5°C and 240 ± 5°C for 30 minutes.

The phases were analysed separately after incubation. The oil phase was extracted with acetonitrile and the extract was analysed for total radioactivity (LSC) and distribution pattern of the recovered radioactivity by radio-TLC, radio-HPLC and HPLC-MS/MS.

The aqueous phase was measured for total radioactivity by LSC without any treatment. Only the Tolyl-labelled 240 °C samples contained significant amounts of radioactivity (Table 3) and were analysed by radio-TLC, radio-HPLC and HPLC-MS/MS.

The oils phases of the 240 °C hydrolysis after extraction were further characterised by lipase digestion. The phases were measured by LSC. The tolyl-labelled samples were digested with pancreatin and pepsin additionally to verify the bioavailability of the test item and its metabolites from this phase.

Radio-TLC were used to determine the distribution of the radioactivity and to identify radioactive residues in the extracts. HPLC-MS/MS were used to confirm the identification based on radio-TLC and to exclude the presence of known metabolites.

In almost all samples the same metabolites were found in different compositions. Hydrolytic degradation of the parent compound at 190 °C resulted in the formation of the metabolite 500M07 which was then degraded to 500M49 and 500M04. At 240 °C further degradation occurred; parent and the metabolite 500M07 were only found in minor amounts whereas in the chlorophenyl label, major component was the metabolite 500M04. In the tolyl label, most of the radioactivity present could be only characterised. Intensive characterisation attempts were undertaken using different enzymes (lipase, pepsin, pancreatin), but also chromatographic techniques. They did not indicate the presence of any individual or distinct metabolite. The metabolite 500M07 was still the most abundant peak which could be identified followed by metabolite 500M49.

Table 68 Distribution of radioactivity after incubation at 190 °C and 240 °C

Sample	Acetonitrile extract oil [% AR]	Aqueous phase [% AR]	Oil after extraction [% AR]	Mass balance [% AR]
1 Chloro 240 °C	79.58	2.49	8.36	90.4
4 Chloro 240 °C	89.56	1.20	4.28	95.0
1 Chloro 190 °C	100.11	0.26	1.21	101.6
4 Chloro 190 °C	84.73	0.33	2.70	87.8
1 Tolyl 240 °C	49.19	15.77	22.09	87.1
4 Tolyl 240 °C	45.61	13.26	28.71	87.6
1 Tolyl 190 °C	85.20	1.83	2.02	89.0
4 Tolyl 190 °C	88.84	0.77	0.29	89.9

Table 69 Distribution pattern of radioactivity at 190 °C, incubation time 30 min

Substance	Replicate	Chlorophenyl-label [% AR]	Tolyl-label [% AR]
Pyraclostrobin	1	46.6	27.5
	4	0.0	42.2
	mean	23.3	34.8
500M07	1	32.1	36.1
	4	50.4	35.4
	mean	41.3	35.7
500M04	1	13.4	not detectable
	4	24.6	
	mean	19.0	

Substance	Replicate	Chlorophenyl-label [% AR]	Tolyl-label [% AR]
500M49	1	not detectable	10.3
	4		5.7
	mean		8.0
start TLC	1	1.3	4.4
	4	0.8	0.6
	mean	1.1	2.5
TLC unknown peak	1	7.0	8.5
	4	9.0	5.0
	mean	8.0	6.8
TLC unknown unspecific	1	*	0.2
	4	*	*
	mean	*	0.1
not further characterised	1	1.2	2.0
	4	3.0	1.1
	mean	2.1	1.5

* not detected or below detection limit

Table 70 Distribution pattern of radioactivity at 240 °C, incubation time 30 min

Substance	Replicate	Chlorophenyl-label [% AR]	Tolyl-label [% AR]
Pyraclostrobin	1	*	*
	4	*	5.0
	mean	*	2.5
500M07	1	6.6	23.4
	4	6.0	8.5
	mean	6.3	15.9
500M04	1	69.9	not detectable
	4	82.3	
	mean	76.1	
500M49	1	not detectable	4.6
	4		*
	mean		2.3
start TLC	1	5.3	36.0
	4	1.3	51.8
	mean	3.3	43.9
TLC unknown peak	1	*	4.9
	4	*	0.0
	mean	*	2.5
TLC unknown unspecific	1	0.3	2.4
	4	*	2.7
	mean	0.2	2.6
not further characterised	1	8.4	15.8
	4	5.5	19.6
	mean	6.9	17.7

* not detected or below detection limit

Table 71 Summary of Identified and Characterized Radioactivity After 30 min at 190 °C and 240 °C in 10ml Olive Oil / 5 ml Water-Mixture

Substance	190 °C in 10 mL Olive Oil / 5 mL Water-Mixture				240 °C in 10 mL Olive Oil / 5 mL Water-Mixture			
	Chlorophenyl-Label		Tolyl-Label		Chlorophenyl-Label		Tolyl-Label	
	distribution		distribution		distribution		distribution	
	mg	%AR	mg	%AR	mg	%AR	mg	%AR
Identified								
Pyraclostrobin	3.2	23.3	4.8	34.8		<LOQ	0.3	2.5

Substance	190 °C in 10 mL Olive Oil / 5 mL Water-Mixture				240 °C in 10 mL Olive Oil / 5 mL Water-Mixture			
	Chlorophenyl-Label		Tolyl-Label		Chlorophenyl-Label		Tolyl-Label	
500M07	5.6	41.3	4.8	35.7	0.9	6.3	2.2	15.9
500M04	2.6	19			10.3	76.1		
500M49			1.1	8			0.3	2.3
Total Identified Radioactivity	11.4	83.6	10.8	78.5	11.2	83.4	2.8	20.7
Characterised								
Unknown at the start point of TLC	0.1	1.1	0.3	2.5	0.5	3.3	6.1	43.9
Single peak at TLC	1.1	8	0.9	6.8			0.3	2.5
Unspecific at TLC			0.01	0.1	0.02	0.2	0.4	2.6
Total Characterised Radioactivity	1.2	9.1	1.2	9.4	0.5	3.2	6.8	49
Total Identified and Characterised Radioactivity	12.6	92.7	12	86.9	11.7	86.9	9.6	69.7
Not characterised	0.3	2.1	0.2	1.5	0.9	6.9	2.4	17.7
Grand Total	12.9	94.8	12.2	89.6	12.6	92.8	12	87.4

Residues in Peel/Pulp

Pineapple

During the 2013–2014 growing season, a total of four field trials were conducted in representative pineapple growing areas in Brazil in order to determine the magnitude and distribution of pyraclostrobin residues in the intermediate and end products after processing (Guimaraes S.F., 2014 a, 2014/3018992). The formulation BAS 518 01 F (WG, 50 g/kg for pyraclostrobin and 500 g/kg for BAS 222 F), was foliar applied 4 times at the intended use rate of 0.150 kg ai/ha resulting in a seasonal target rate of 0.600 kg ai/ha. The applications were made with a spray interval of 7 days and a water volume of 200 L/ha.

In two decline trials (G130189 and G130190) pineapple specimens were collected at the day of the last application and additionally 3 and 7 days later for analysis of the raw agricultural commodity (RAC).

In two harvest trials (G130191 and G130192) pineapple specimens were collected 3 days after the last application for analysis of the raw agricultural commodity (RAC). Simulating industrial processes whole fruit specimens were processed into peel and pulp.

Table 72 Summary of pyraclostrobin residues and processing factors in pineapple

Matrix	DALA	Pyraclostrobin residue (mg/kg)				Processing factors				
		G130189	G130190	G130191	G130192	G130189	G130190	G130191	G130192	Mean
Whole pineapple (RAC)	0 3 7	0.027 <0.01 0.021	0.066 0.048 0.032	0.030	0.069	1	1	1	1	1
peel pulp	3 3	0.029 <0.01	0.059 <0.01	0.046 <0.01	0.23 <0.01	2.90 1	1.23 0.21	1.53 0.33	3.33 0.14	2.24 0.42

Table 73 Summary of pyraclostrobin residues and processing factors in pineapple

Matrix	DALA	500M07 residue pyraclostrobin (mg/kg)				Processing factors based on metabolite 500M07 residue				
		G130189	G130190	G130191	G130192	G130189	G130190	G130191	G130192	Mean
Whole pineapple (RAC)	0 3 7	<0.010 <0.010 <0.010	<0.010 < 0 010 <0.010	<0.010 < 0 010 <0.010	0.010	1	1	1	1	1
peel pulp	3 3	<0.010 <0.010	<0.010 <0.010	<0.010 <0.010	0.017 0.010	1 1	1 1	1 1	1.70 1	1.18 1

Effects on the residue level

Apple

During the 2001 growing season four field trials were conducted in different representative apple growing areas in Germany to determine the residue level of BAS 510 F and pyraclostrobin in apples and processed fractions thereof (Schulz H., 2002 a, 2001/1015047). This summary only focuses on the residue results of pyraclostrobin.

The fungicidal test substance BAS 516 01 F was applied four times with an application rate of 100 g ai/ha pyraclostrobin each (38, 30, 22 and 14 days before the commercial harvest) resulting in a maximum seasonal target rate of 400 g ai/ha, in order to determine the magnitude of the residues of active ingredients in or on Raw Agricultural Commodities (RAC). For the analysis apples were taken immediately after the last application and about 14 days thereafter.

The apples were processed to the following products: wash water, washed apples, fresh pomace, dried pomace, thick juice, apple juice, remainder of the straining process, apple sauce.

Table 74a Residues of pyraclostrobin in apple processed fractions

Matrix	DALA	Pyraclostrobin residues [mg/kg]				Processing factors*				Mean
Trial		AT-01/020-1	AT-01/020-2	AT-01/020-3	AT-01/020-4	AT-01/020-1	AT-01/020-2	AT-01/020-3	AT-01/020-4	
whole fruit, RAC	0	0.267	0.835	0.518	0.179	-	-	-	-	
whole fruit, RAC	14	0.165	0.555	0.266	0.133	-	-	-	-	
wash water	0	0.085	-	0.026	-	0.32	-	0.05	-	0.18
fresh pomace	0	1.896	-	2.1	-	7.1	-	4.05	-	5.58
fresh juice	0	< 0.02	-	< 0.02	-	0.07	-	0.04	-	0.06
wash water	14	< 0.02	0.072	< 0.02	< 0.02	0.12	0.13	0.08	0.15	0.12
washed apples	14	0.139	0.233	0.301	0.11	0.84	0.42	1.13	0.83	0.81
fresh pomace	14	2.445	3.545	4.258	1.314	14.82	6.39	16.01	9.88	11.77
dried pomace	14	8.407	7.774	11.356	4.165	50.95	14.01	42.69	31.32	34.74
thick juice	14	0.02	0.02	< 0.02	< 0.02	0.12	0.04	0.08	0.15	0.1
fresh juice	14	< 0.02	< 0.02	< 0.02	< 0.02	0.12	0.04	0.08	0.15	0.1
remainder	14	0.534	1.093	0.882	0.144	3.24	1.97	3.32	1.08	2.4
apple sauce	14	0.062	0.228	0.178	0.087	0.38	0.41	0.67	0.65	0.53

Table 74b Residues of metabolite 500M07 in apple processed fractions

Matrix	DALA	500M07 residues [mg/kg]				Processing factors*				Mean
Trial		AT-01/020-1	AT-01/020-2	AT-01/020-3	AT-01/020-4	AT-01/020-1	AT-01/020-2	AT-01/020-3	AT-01/020-4	
whole fruit, RAC	0	0.028	0.097	0.048	< 0.02	-	-	-	-	
whole fruit, RAC	14	0.039	0.144	0.034	< 0.02	-	-	-	-	
wash water	0	< 0.02	-	< 0.02	-	0.71	-	-	-	0.71
fresh pomace	0	0.268	-	0.233	-	9.57	-	-	-	9.57
fresh juice	0	< 0.02	-	< 0.02	-	0.71	-	-	-	0.71
wash water	14	< 0.02	< 0.02	< 0.02	< 0.02	0.51	0.14	0.59	-	0.41
washed apples	14	< 0.02	0.074	0.044	< 0.02	0.51	0.51	1.29	-	0.77
fresh pomace	14	0.484	1.005	0.448	0.168	12.41	6.98	13.18	8.4	10.24
dried pomace	14	1.805	2.475	1.351	0.592	46.28	17.19	39.74	29.6	33.2
thick juice	14	< 0.02	< 0.02	< 0.02	< 0.02	0.51	0.14	0.59	-	0.41
fresh juice	14	< 0.02	< 0.02	< 0.02	< 0.02	0.51	0.14	0.59	-	0.41
remainder	14	0.135	0.221	0.06	< 0.02	3.46	1.53	1.76	-	2.25
apple sauce	14	< 0.02	0.046	< 0.02	< 0.02	0.51	0.32	0.59	-	0.47

Olives

During the growing season of 2012/2013, four field trials with olives (field conditions) were conducted in Greece and Spain, in order to determine the magnitude of the residues of pyraclostrobin and its metabolite in olives and processed products after treatment (Gabriel E.J., 2013 b, 2013/1243223). Olives were treated three times at a rate of 1.5 kg/ha of formulated product, corresponding to 0.300 kg ai/ha of pyraclostrobin. The applications were performed 47–48 days before harvest (DBH), 38–40 DBH and 28 DBH with a spray volume of 1000 L/ha.

Olive fruit specimens were collected at the day of the last application for analysis and 28 days later for analysis of the RAC and also for processing. Olive fruit specimens were processed into fermented olives and refined oil. In addition, wash water, washed olives, wet pomace, dried pomace, press cake and raw oil were sampled and also analysed.

The residue levels detected in the treated specimens and processed fractions as well as the calculated processing factors are presented in the following table:

Table 75 Summary of residues in the treated olive specimens and processed products

Portion analysed	No. of specimens	DALA [a]	Pyraclostrobin	500M07 (BF 500-03) [b]	Sum of pyraclostrobin and 500M07 [c]
			[mg/kg]		
Fruit (with stones)	4	0	1.20 - 2.20	0.026 - 0.059	1.20 - 2.30
Fruit (without stones)*	4	28	0.66 - 1.50	0.028 - 0.10	0.51 - 1.20
Fresh fruit (PPM)	4	28	0.40 - 1.10	0.020 - 0.13	0.42 - 1.20
Fresh fruit (SGS)	4	28	0.51 - 1.10	0.025 - 0.10	0.54 - 1.20
Fermented olives	4	n.a.	0.62 - 1.20	0.044 - 0.13	0.66 - 1.30
Press cake	4	n.a.	0.43 - 1.60	0.025 - 0.19	0.46 - 1.80
Wash water (olives)	4	n.a.	0.014 - 0.11	<0.010	0.024 - 0.12
Refined oil	4	n.a.	<0.010	0.98 - 3.0	0.99 - 3.0
Raw oil	4	n.a.	2.6 - 8.1	0.21 - 0.99	2.8 - 9.1
Washed olives	4	n.a.	0.33 - 0.95	0.020 - 0.12	0.35 - 1.1
Wet pomace	4	n.a.	0.37 - 1.3	0.020 - 0.16	0.39 - 1.5
Dried pomace	4	n.a.	0.80 - 2.1	0.047 - 0.24	0.85 - 2.3

[a] DALA = Days after last application

[b] expressed as parent equivalent. The conversion factor from 500M07 to pyraclostrobin is 1.084.

[c] Residues <0.010 mg/kg were set to 0.010 mg/kg. For calculation of sum, residues are given as <0.02 mg/kg.

PPM: Samples before processing at Pilot Pflanzenöltechnologie Magdeburg e.V. (PPM)

SGS: Samples before processing at SGS Institut Fresenius GmbH

* Corrected values with the pulp/whole fruit correction factor

n.a.: not applicable

Table 76 Summary of pyraclostrobin residues and processing factors in olive fruit and processed commodities

Matrix	DALA	Residue concentration of pyraclostrobin (mg/kg)				Processing factors				
		L120427	L120428	L120429	L120430	L120427	L120428	L120429	L120430	Mean
Olive fresh fruit (PPM) (RAC)	28	1.10	1.10	0.83	0.40	-	-	-	-	-
Press cake		1.60	1.60	0.93	0.43	1.45	1.45	1.12	1.08	1.28
Wash cater (olives)		0.026	0.11	0.024	0.014	0.02	0.10	0.03	0.04	0.05
Refined oil		<0.01	<0.01	<0.01	<0.01	n.c.	n.c.	n.c.	n.c.	n.c.
Raw oil		8.10	6.50	4.30	2.60	7.36	5.91	5.18	6.50	6.24
Washed olives		0.89	0.95	0.64	0.33	0.81	0.86	0.77	0.83	0.82
Wet pomace		0.94	1.30	0.73	0.37	0.85	1.18	0.88	0.93	0.96
Dried pomace		2.10	2.00	1.3	0.80	1.91	1.82	1.57	2.00	1.82
Olive fresh fruit (SGS) (RAC)	28	1.10	0.89	0.51	0.53	-	-	-	-	-
Fermented olives		1.20	0.91	0.74	0.62	1.09	1.02	1.45	1.17	1.18

n.c.: not calculated

PPM: Samples before processing at Pilot Pflanzenöltechnologie Magdeburg e.V. (PPM)

SGS: Samples before processing at SGS Institut Fresenius GmbH

Table 77 Summary of metabolite 500M07 residues and processing factors in olive fruit and processed commodities

Matrix	DALA	Residue concentration of 500M07 (BF 500-3) (mg/kg)				Processing factors				
		L120427	L120428	L120429	L120430	L120427	L120428	L120429	L120430	Mean
Olive fresh fruit (PPM) (RAC)	28	0.10	0.13	0.043	0.020	-	-	-	-	-
Press cake		0.14	0.19	0.057	0.025	1.40	1.46	1.33	1.25	1.36
Wash cater (olives)		<0.01	<0.01	<0.01	<0.01	n.c.	n.c.	n.c.	n.c.	n.c.

Matrix	DALA	Residue concentration of 500M07 (BF 500-3) (mg/kg)				Processing factors				
		L120427	L120428	L120429	L120430	L120427	L120428	L120429	L120430	Mean
Refined oil		3.00	1.90	1.50	0.98	30.00	14.62	34.88	49.00	32.12
Raw oil		0.99	0.98	0.35	0.21	9.90	7.54	8.14	10.50	9.02
Washed olives		0.082	0.12	0.041	0.020	0.82	0.92	0.95	1.00	0.92
Wet pomace		0.10	0.16	0.042	0.020	1.00	1.23	0.98	1.00	1.05
Dried pomace		0.20	0.24	0.087	0.047	2.00	1.85	2.02	2.35	2.05
Olive fresh fruit (SGS) (RAC)	28	0.10	0.10	0.034	0.025	-	-	-	-	-
Fermented olives		0.13	0.13	0.051	0.044	1.30	1.30	1.50	1.76	1.47

n.c.: not calculated

PPM: Samples before processing at Pilot Pflanzenöltechnologie Magdeburg e.V. (PPM)

SGS: Samples before processing at SGS Institut Fresenius GmbH

Spinach

During the 2009 growing season, 4 field trials were conducted in representative spinach growing areas in Germany to determine the residue level of pyraclostrobin in spinach and process fractions thereof (washed spinach, wash water, blanched spinach, blanch water, cooked spinach) (Braun D., 2011 b, 2011/1069418). Pyraclostrobin was foliar applied twice to spinach at a rate equivalent to 0.201 kg pyraclostrobin per ha (corresponding to the double rate). Each trial consisted of a control (untreated) and a treated plot. The applications took place at 21±1 and 14±1 days before harvest with 400 L/ha of spray.

The spinach whole plant (without roots) specimens were collected immediately after last application (0 DALA), and 14±1 DALA leaves were taken. The spinach leaves were processed to several products.

Apart from washed spinach, wash water, the following fractions were prepared and analysed: blanched spinach, blanch water and cooked spinach.

Table 78 Summary of pyraclostrobin residues in spinach and thereof processed fractions

Matrix	DALA	Residues pyraclostrobin (mg/kg)				Processing factors				
		L090186	L090187	L090188	L090189	L090186	L090187	L090188	L090189	Mean
Whole plant	0	9.20	11.24	7.82	7.40	-	-	-	-	-
Leaves, RAC	14	0.88	0.67	0.15	0.15	1	1	1	1	1
Washed spinach		0.85	0.42	0.13	0.17	0.97	0.63	0.90	1.17	0.92
Wash water		0.10	0.03	<0.01	0.03	0.11	0.11	0.07	0.21	0.11
Blanched spinach		0.71	0.44	0.19	0.12	0.81	0.66	1.31	0.83	0.91
Blanch water		0.02	0.02	<0.01	<0.01	0.02	0.03	0.07	0.07	0.05
Cooked spinach		0.69	0.30	0.19	0.09	0.78	0.45	1.31	0.62	0.79

Table 79 Summary of pyraclostrobin metabolite 500M07 residues in spinach and thereof processed fractions

Matrix	DALA	Residues 500M07 (mg/kg)				Processing factors				
		L090186	L090187	L090188	L090189	L090186	L090187	L090188	L090189	Mean
Whole plant	0	0.05	0.18	0.12	0.12	-	-	-	-	-
Leaves, RAC	14	0.06	0.09	0.02	<0.01	1	1	1	1	1
Washed spinach		0.07	0.08	0.03	0.02	1.17	0.84	1.5	2	1.38
Wash water		<0.01	<0.01	<0.01	<0.01	0.17	0.11	0.5	1	0.45
Blanched spinach		0.08	0.06	0.03	0.01	1.33	0.63	1.5	1	1.12
Blanch water		<0.01	<0.01	<0.01	<0.01	0.17	0.11	0.5	1	0.45
Cooked spinach		0.11	0.06	0.03	0.02	1.83	0.63	1.5	2	1.49

Pea

During the growing season of 2003, four field trials were conducted in peas in different representative growing areas in Germany and the Netherlands in order to determine the magnitude and distribution of pyraclostrobin residues in the various intermediate

and end products after processing (Schulz H., 2004 a, 2004/1000750). Two of the trials consisted of two plots, one untreated and one treated plot; the other two trials consisted of one treated plot.

The test item was foliar applied 2 times (at BBCH 65–69 and BBCH 72–75) at an exaggerated target rate of 5 kg/ha for each application (5-fold the normal rate). Specimens of pea whole plants were collected from each plot immediately after the last application for analysis. On the second sampling date, the seed (RAC) were taken 10 / 14 DALA for analysis and for processing. The following processed fractions were obtained: washed peas, wash water, cooked peas, boiled water, canned peas and vegetable stock.

Table 80 Calculation of mean processing factors for processed peas

Matrix	Residue level pyraclostrobin [mg/kg]	Processing factor
pea (seed), RAC	<0.02	1
washed peas	<0.02	1
wash water	<0.02	1
cooked peas	<0.02	1
boiled water	<0.02	1
canned peas	<0.02	1
vegetable stock	<0.02	

Rice

During the 2014 growing season, three field trials were conducted in United States of America (NAFTA Growing Region 4) in order to investigate the residue behaviour of pyraclostrobin (BAS 500 F) in paddy rice and its processed products previously treated with the test item BAS 500 23 F (Woodard D.L., 2015 b, 2015/7000583).

The CS formulation of pyraclostrobin, was foliar applied twice at three times the maximum label rate (0.3 kg ai/ha). The first application was made at target BBCH 49 (flag leaf sheath open) and the second application was made at target BBCH 65 (full flowering). Two applications using a backpack, or tractor mounted, sprayer were made at a total rate of 0.6 kg ai/ha with a spray volume of 150–500 L/ha. At BBCH 89 (rice maturity), a 1 kg RAC sample was harvested and frozen within 8 hours of collection. A bulk sample was also harvested from each plot in which sufficient rice plants were harvested to create the necessary rice fractions of whole rice (US RAC), bran, parboiled white milled rice, flour, brown rice (EU RAC), polished rice, hulls and sake.

Table 81 Summary of pyraclostrobin and 500M07 residues in paddy rice and its processed fractions

Matrix	Pyraclostrobin residues [mg/kg)			500M07 Residues [mg/kg]		
Trial	R140783	R140784	R140785	R140783	R140784	R140785
Whole plant, 0 DALA	9.3	7.690	4.670	0.162	0.051	0.047
Whole plant, 0 DALA	8.21	6.870	4.890	0.155	0.048	0.051
Whole rice (US RAC)	0.931	0.419	0.600	0.167	0.092	0.130
Brown rice (EU RAC)	0.099	0.024	0.086	0.013	<0.01	0.011
Hulls	4.140	1.570	2.790	0.741	0.301	0.593
Polished rice	0.016	<0.01	0.012	<0.01	<0.01	<0.01
Flour	<0.01	<0.01	0.014	<0.01	<0.01	<0.01
Bran	0.567	0.127	0.421	0.071	0.017	0.050
Sake	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Parboiled white milled rice	0.088	0.028	0.065	0.184	0.009	0.023
whole Rice (US RAC)	1.010	0.354	0.561	0.200	0.069	0.118
whole Rice (US RAC)	0.959	0.279	0.681	0.184	0.054	0.145

Note: Residues <LOD or <0.01 were set to < LOQ (<0.01). For calculation purposes, <0.01 was set 0.01.

Average processing factors for residues of pyraclostrobin in rice processed commodities are calculated and displayed in Table 82. The processing factors are calculated based on whole rice (US RAC) residues for pyraclostrobin. The average pyraclostrobin calculations showed a concentration in hulls with a processing factor (PF) of 4×. Residues decreased significantly in bran with an average PF of 0.55, in parboiled white milled rice with an average PF of 0.09, in flour with an average PF of 0.02, in brown rice (EU RAC) with an average PF of 0.1 and in polished rice and sake with an average PF of 0.02.

Table 82 Processing factors for pyraclostrobin on rice processed fractions based on whole grain (US RAC)

Matrix	Pyraclostrobin processing factors [a]			Average pyraclostrobin processing factors
Trial	R140783	R140784	R140785	
Whole rice (US RAC)	0.967*	0.351*	0.614*	1
Bran	0.567 / 0.967=0.59	0.127 / 0.351=0.36	0.421 / 0.614=0.69	0.55
Parboiled white milled rice	0.088 / 0.967=0.09	0.028 / 0.351=0.08	0.065 / 0.614=0.11	0.09
Flour	<0.01 / 0.967=0.01	<0.01 / 0.351=0.03	0.014 / 0.614=0.02	0.02
Brown rice	0.099 / 0.967=0.1	0.024 / 0.351=0.07	0.086 / 0.614=0.14	0.10
Polished rice	0.016 / 0.967=0.02	<0.01 / 0.351=0.03	0.012 / 0.614=0.02	0.02
Hulls	4.140 / 0.967=4.28	1.570 / 0.351=4.47	2.790 / 0.614=4.54	4.43
Sake	<0.01 / 0.967=0.01	<0.01 / 0.351=0.03	<0.01 / 0.614=0.02	0.02

[a] processing factor = average pyraclostrobin residue in unprocessed whole grain US RAC samples (2 samples collected by the processor, at the processing facility, prior to processing). For calculation purposes, <0.01 was set 0.01.

* mean of three values

In Table 83, processing factors are calculated based on brown rice (EU RAC) residues for pyraclostrobin. The average pyraclostrobin calculations showed a concentration in bran with processing factor of 5×. Residues decreased significantly in parboiled white milled rice with an average PF of 0.94, in flour and polished rice with an average PF of 0.24 and in sake with an average PF of 0.21.

Table 83 Processing factors for pyraclostrobin on rice processed fractions based on brown rice (EU RAC)

Matrix	Pyraclostrobin processing factors a)			Average pyraclostrobin processing factors
Trial	R140783	R140784	R140785	
Brown rice (EU RAC)	0.099	0.024	0.086	1
Bran	0.567 / 0.099=5.73	0.127 / 0.024=5.29	0.421 / 0.086=4.90	5.31
Parboiled white milled rice	0.088 / 0.099=0.89	0.028 / 0.024=1.17	0.065 / 0.086=0.76	0.94
Flour	<0.01 / 0.099=0.10	<0.01 / 0.024=0.45	0.014 / 0.086=0.16	0.24
Polished rice	0.016 / 0.099=0.16	<0.01 / 0.024=0.42	0.012 / 0.086=0.14	0.24
Sake	<0.01 / 0.099=0.10	<0.01 / 0.024=0.42	<0.01 / 0.086=0.12	0.21

[a] processing factor = average pyraclostrobin residue in processed brown rice EU RAC sample. For calculation purposes, <0.01 was set 0.01.

Sugarcane

A sugarcane processing study was conducted in the USA during the 2008 growing season to determine the potential for concentration of residues of pyraclostrobin in the processed fractions of sugarcane (White & Malinksy 2010 b, 2010/7012903). The treated plots received four broadcast foliar applications of a tank-mix containing the active ingredient pyraclostrobin (BAS 500 F, EC) at a rate targeting 0.22 kg ai/ha/application of pyraclostrobin with a 13 or 14 day retreatment interval.

At two of the test locations, an additional treated plot received four broadcast foliar applications of a tank-mix of pyraclostrobin at exaggerated rates (5×) targeting 1.10 kg ai/ha/application of pyraclostrobin with a 13 or 14 day retreatment interval.

The applications were made using ground equipment and spray volumes of approximately 145–254 L water/ha. Duplicate sugarcane RAC samples (cane) were harvested from each plot at 13–14 and 27–28 days after the last application (DALA). In addition, at trial TX24, a single bulk, untreated control sample and one bulk treated (5×) sugarcane RAC sample were harvested at 14 DALA and later used to generate sugarcane processed commodities.

Table 84 Summary of residues (pyraclostrobin and 500M07) in/on sugarcane specimens after 4 applications

Matrix	Year	DALA [a]	Range of residues (mg/kg)		Processing factors
			Pyraclostrobin	500M07	
sugarcane cane, 1×	2008	13 - 14	<0.02 - 0.1049	<0.02 - 0.0267	-
sugarcane cane, 1×		27 - 28	<0.02 - 0.0866	<0.02 - <0.02	-

Matrix	Year	DALA [a]	Range of residues (mg/kg)		Processing factors
			Pyraclostrobin	500M07	
sugarcane cane, 5×		14	0.2163 - 0.2935	0.0243 - 0.0253	-
sugarcane cane, 5×		14	0.1558 - 0.3811	<0.02 - 0.0405	-
sugarcane stalks (RAC), 5×			0.2322	0.0329	1
refined sugar		14	<0.02	<0.02	0.1
blackstrap molasses			0.0568	<0.02	0.2 [b]

[a] Days after last application

[b] For calculation purposes, <0.02 is set 0.02.

Tea

A processing study was conducted on tea to determine the potential for concentration of residues of pyraclostrobin in tea processed products (Lenz C.A., 2017 c, 2015/1086962). At three trials, the treated tea plots received two applications, each application at 0.272 kg ai/ha of pyraclostrobin, two times (2×) the maximum label rate, for the collection of tea leaves to produce black tea for further processing into black tea processed products. The first applications were made at a target 21-day PHI (BBCH 40–43), and the second applications were made at a target 14-day PHI (BBCH 42–43). Both applications were made using knapsack sprayers at a total rate of 0.544 kg ai/ha of pyraclostrobin with a spray volume of 2000–4000 L/ha. No adjuvants were added to the spray mixtures.

From the 2× treated plots, a leaf sample was collected at the 14-day PHI for production of black tea which would later be processed into black tea products of infusion solution, instant tea, tea extract, with intermediate processing products of steeped leaves (from the infusion solution step) and cooked leaves (from the instant tea step) also being collected.

Table 85 Summary of residues in the treated tea specimens and processed products

Portion analysed	No. of specimens	DALA [a]	BAS 500 F	500M07 [b]	Sum of BAS 500 F and 500M07 [c d]
			[mg/kg]		
Fresh leaves	3	0	7.4 - 9.7	0.049 - 0.28	7.5 - 9.7
Fresh leaves*	3	12 - 14	<0.01 - 2	<0.011 - 0.28	<0.021 - 2.3
Black tea	3	12 - 14	0.047 - 7.5	<0.011 - 0.64	0.58 - 8.1
Black tea**	3	12 - 14	0.057 - 8.1	<0.011 - 0.76	0.068 - 8.9
Infusion black tea	3	n.a.	<0.01	<0.011	<0.021
Instant tea	3	n.a.	<0.01 - 0.016	<0.011	<0.021 - 0.027
Tea extract	3	n.a.	<0.01 - 0.15	<0.011 - 0.027	<0.021 - 0.18
Steeped leaves (infusion)	3	n.a.	0.014 - 2.2	<0.011 - 0.26	0.025 - 2.5
Cooked leaves (instant)	3	n.a.	0.017 - 2.7	<0.011 - 0.67	0.028 - 3.4

[a] DALA = Days after Last Application

[b] expressed as parent equivalent. The conversion factor from 500M07 to BAS 500 F is 1.084.

[c] for calculation purposes <0.01 and <0.011 were set to 0.01 and 0.011;

[d] sum of pyraclostrobin and 500M07, as parent equivalent (conversion factor is 1.08)

* Fresh leaves sample from 2 trials were collected independently of the bulk sample used to produce black tea and the black tea processed products. All corresponding residue determinations for the fresh leaves cannot be used to calculate processing factors.

** Black Tea sub-samples collected at processing facility prior to generation of processed products. The residue from this black tea sample was used to calculate the processing factor in black tea.

n.a.: not applicable

Table 86 Summary of pyraclostrobin residues and processing factors in tea and processed commodities

Matrix	DALA	Residue concentration of pyraclostrobin [a] (mg/kg)			Processing factors		
		L140320	L140321	L140326	L140320	L140321	L140326
Fresh leaves	12 - 14	0.61*	<0.01*	2.0	-	-	-
Black tea (RAC)		0.057	1.5	8.1	-	-	-
Infusion solution		<0.01	<0.01	<0.01	n.a.	n.a.	0.001
Instant tea		<0.01	<0.01	0.016	n.a.	n.a.	0.002
Tea extract		<0.01	0.036	0.15	n.a.	n.a.	0.02

Matrix	DALA	Residue concentration of pyraclostrobin [a] (mg/kg)			Processing factors		
		L140320	L140321	L140326	L140320	L140321	L140326
Steeped leaves (infusion)		0.014	0.47	2.2	n.a.	n.a.	0.27
Cooked leaves (instant)		0.017	0.54	2.7	n.a.	n.a.	0.33

* This fresh leaves sample was collected independently of the bulk sample used to produce black tea and the black tea processed products. All corresponding residue determinations for the fresh leaves cannot be used to calculate processing factors.

[a] For calculation purposes, <0.01 was set to 0.01.

n.a.: not applicable

Table 87 Summary of 500M07 residues and processing factors in tea and processed commodities

Matrix	DALA	Residue concentration of pyraclostrobin [a b] (mg/kg)			Processing factors		
		L140320	L140321	L140326	L140320	L140321	L140326
Fresh leaves	12 - 14	0.075*	<0.011*	0.28	-	-	-
Black tea (RAC)		<0.011	0.093	0.76	-	-	-
Infusion solution		<0.011	<0.011	<0.011	n.a.	n.a.	0.01
Instant tea		<0.011	<0.011	<0.011	n.a.	n.a.	0.01
Tea extract		<0.011	<0.011	0.027	n.a.	n.a.	0.04
Steeped leaves (infusion)		<0.011	0.033	0.26	n.a.	n.a.	0.34
Cooked leaves (instant)		<0.011	0.13	0.67	n.a.	n.a.	0.88

* This fresh leaves sample was collected independently of the bulk sample used to produce black tea and the black tea processed products. All corresponding residue determinations for the fresh leaves cannot be used to calculate processing factors.

[a] expressed as parent equivalent. The conversion factor from 500M07 to BAS 500 F is 1.084.

[b] For calculation purposes, <0.011 was set to 0.011.

n.a.: not applicable

RESIDUES IN ANIMAL COMMODITIES

Farm animal feeding studies

Animal feeding studies were evaluated by the 2004 and 2010 Meeting. No additional data have been received by the current Meeting.

APPRAISAL

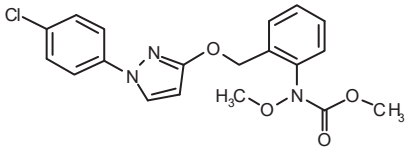
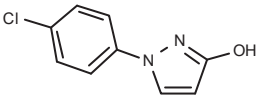
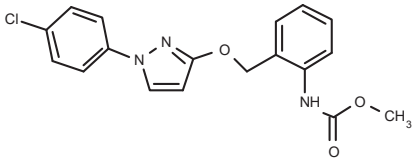
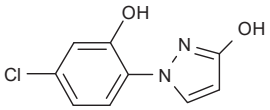
Pyraclostrobin was first evaluated for toxicology by the 2003 JMPR when an ADI of 0–0.03 mg/kg bw and an ARfD of 0.05 mg/kg bw were established. The current Meeting established a new ARfD of 0.7 mg/kg bw. The compound was evaluated for residues by the JMPR in 2006, 2011 and 2014, and was listed by the Forty-ninth Session of the CCPR for the evaluation of additional uses by the 2018 JMPR. The Meeting received information on the animal and plant metabolism, analytical methods, use patterns, supervised trials, and processing.

The 2004 JMPR recommended the following residue definition for pyraclostrobin:

Definition of the residue for compliance with the MRL and for dietary risk assessment: *pyraclostrobin*.

The residue is fat-soluble.

The following metabolites of pyraclostrobin are discussed in this document

Code Name	Chemical Name	Structure
Pyraclostrobin	methyl N-(2-{[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxymethyl}phenyl)-(N-methoxy)carbamate	
500M04	1-(4-chlorophenyl)-1H-pyrazol-3-ol	
500M07	methyl N-(2-{[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxymethyl}phenyl) carbamate	
500M85	1-(4 chloro2-hydroxy phenyl) 1H-pyrazol-3-yl	

Plant metabolism

The Meeting received four new metabolism studies, three for foliar treatment (grape, Chinese cabbage, rice) and for one seed treatment (wheat).

Grape

Grape vines received six foliar applications of chlorophenyl- or tolyl- [^{14}C] pyraclostrobin at a rate of 250 g ai/ha (total 1500 g ai/ha). The first application was performed at growth stage BBCH 53–55 (inflorescences visible to fully developed), and the application was repeated 5 times approximately every 16 to 19 days thereafter. The last application was done at BBCH 81 (beginning of ripening), 40 days before harvest.

TRR levels ranged from 0.95 to 1.56 mg eq/kg in grape berries and from 40 to 41 mg eq/kg in grape leaves. In grape berries, the extraction of radioactivity with methanol was high (84 to 88% TRR). Parent compound (56–62% TRR) and its main metabolite 500M07 (11–17% TRR) were shown to be present in grape methanol extracts. Three minor metabolites were shown to be present in grape berries, ≤ 4% TRR.

In leaves, around 70% of the TRR could be extracted with methanol for both labels. Most of the radioactivity (54% TRR) was found to be organo-soluble. Pyraclostrobin and its desmethoxy metabolite 500M07 formed the major part of the radioactivity in the MeOH extracts.

Chinese cabbage

The metabolism of pyraclostrobin in Chinese cabbage (head, *Shin-Kyoto No. 3*) was investigated following three foliar treatments of chlorophenyl- or tolyl- [^{14}C] pyraclostrobin at a rate of 130 g ai/ha (total 390 g ai/ha) and applied at a 7 day interval. Three days after the final application, the treated plants were harvested and separated into a leaf-ball (as edible portion) and outer leaves.

TRR levels ranged from 2.8 to 3.7 mg eq/kg in outer leaves and from 1.1 to 1.2 mg eq/kg in leaf ball. The extraction of radioactivity with benzene and methanol ranged from 89 to 109% of the TRR. Most of the residues were unchanged pyraclostrobin, representing 83% (2.3 mg eq/kg)–82.5% (3.03 mg eq/kg) of the TRR in the outer leaves and 74.2% (0.83 mg eq/kg) - 85.1% (1.01 mg eq/kg) of the TRR in leaf-ball. The major metabolite identified was desmethoxylated 500M07, representing 8.5% (0.23 mg eq/kg) to 12% (0.44 mg eq/kg) of the TRR in the outer leaves and 5.6% (0.06 mg eq/kg) to 11% (0.13 mg eq/kg) of the TRR in leaf-ball.

Rice

Pyraclostrobin metabolism in rice was investigated following two foliar application of chlorophenyl- or tolyl- [^{14}C] pyraclostrobin, at a rate of 101 g ai/ha. The first application was carried out at growth stage BBCH 39 (Flag leaf stage) with the second at BBCH 69

(End of flowering). Forage samples of both labels were taken one day before the second application. Straw, grain and husks were sampled from mature rice plants at BBCH 89. The husks were combined with straw.

The TRR levels in forage ranged from 1.6 to 1.9 mg eq/kg, in rice straw from 8.6 to 10 mg eq/kg and in rice grain from 2.0 to 2.1 mg eq/kg. The extractability of the radioactivity with methanol and water was 84 -86% of the TRR in forage, 65–68% of the TRR in rice straw and 71–76% of the TRR in rice grain.

Most of the residues were unchanged pyraclostrobin, representing 42–73% of the TRR in rice forage, straw and grain. The major metabolite identified was 500M07, representing 8–17% of the TRR. Some further polar and medium polar components were found at levels below 10% TRR.

Wheat (seed treatment)

The metabolism of pyraclostrobin in wheat was investigated following seed treatment with chlorophenyl- or tolyl- [^{14}C] pyraclostrobin, at a rate of 5 g ai/100 kg seeds. Samples of forage were collected at growth stage BBCH59 (end of heading), of hay at BBCH 73–75 (early milk) and of grain and straw at BBCH 89 (fully ripe).

Total radioactive residue levels were below 0.01 mg eq/kg in all matrices. The extraction rates of the radioactive residues from straw with methanol and water was moderate (46–63% TRR). In straw, the only significant peak detected in the chromatogram was probably the parent pyraclostrobin and/or its metabolite 500M07. Since the amount of radioactive residues was below 0.01 mg eq/kg in all matrices, no further investigations were performed for forage, hay and grain.

Residues in succeeding crops

A confined rotational crop study was conducted to examine the nature and level of residues of pyraclostrobin in succeeding crops. [^{14}C] - pyrazole labelled pyraclostrobin was applied to the bare soil of a planting container by spray application at a nominal rates of 500 g ai/ha. Rotational crops (radish, wheat and lettuce) were sown at a plant back interval of 32 days after application.

In all rotational crop matrices (radish, wheat, lettuce), low levels of radioactive residues were foud. TRRs in radish leaf accounted for 0.01 mg eq/kg, for radish root 0.003 mg eq/kg, for wheat forage 0.014 mg eq/kg and for lettuce plant 0.016 mg eq/kg.

The major portions of the radioactive residues were extracted with methanol (47–63% TRR). Subsequent extractions with water contained ≤ 8.5% TRR.

The results indicate that there was no significant translocation of pyraclostrobin and/or its degradation products from the soil to crops and confirm the conclusions of 2004 JMPR

Methods of analysis

The current Meeting received description and validation data for analytical methods of pyraclostrobin and its metabolites in plant and animal commodities.

Methods for the determination of pyraclostrobin and its metabolite 500M07 in plant matrices and 500M04 and 500M85 in animal matrices are based on HPLC-MS/MS detection. Plant matrices can be extracted with methanol:water:hydrochloric acid or methanol:water and purified on a C18-column or by partitioning with cyclohexane.

Animal matrices are extracted by partitioning into acetonitrile/iso-hexane. The common moiety method hydrolysed residues with aqueous sodium hydroxide to yield hydroxypyrazole(s), which can be extracted using ethyl acetate.

The LOQ for pyraclostrobin is 0.02 mg/kg in plant matrices, and 0.01 mg/kg in animal matrices. The LOQ for pyraclostrobin metabolite 500M07 is 0.02–0.05 mg/kg in plant matrices, while it is 0.01 mg/kg for metabolites 500M04 and 500M85 in animal matrices.

The methods are suitable for the analysis of pyraclostrobin and related metabolites in plants and animal matrices.

Definition of the residue

The 2004 JMPR meeting concluded that for plants, pyraclostrobin was the major component of the ^{14}C residue in grape, potato and wheat. For the desmethoxy metabolite 500M07, the 2004 JMPR concluded that, as it was present in much smaller amounts than parent pyraclostrobin, the metabolite did need not need to be included in the residue definition. The Meeting recommended the residue definition for compliance with the MRL and for dietary risk assessment for plant commodities should be pyraclostrobin. The additional plant metabolism studies on grape, Chinese cabbage, rice and wheat, showed that unchanged pyraclostrobin was the major residue in all samples examined.

The current Meeting confirmed the following residue definitions for pyraclostrobin:

Definition of the residue for compliance with the MRL and dietary risk assessment for plant and animal commodities: *pyraclostrobin.*

The residue is fat-soluble.

Results of supervised residue trials on crops

The Meeting received data from supervised trials on apple, pear, table olives, litchi, avocado, mango, papaya, banana, passion fruit, spinach, lettuce, witloof chicory, green bean, broad bean, common bean, soya bean, pea, garden pea, dry beans, field pea, lentil, radish, carrot, celeriac, sugar beet, potato, celery, asparagus, rice, sugar cane, oilseeds, cacao beans, and tea.

The Meeting noted that some GAPs included both a latest growth stage for application and a PHI in the use instructions. In interpreting these use instructions, the Meeting decided that trial data reflecting application at the prescribed growth stage and with harvest no earlier than the PHI was considered for the estimation of residue levels.

Pome fruits

The critical GAP in Germany for the use of pyraclostrobin in pome fruits consists of 4 foliar applications of 0.1 kg ai/ha, a re-treatment interval (RTI) of 8 days and a PHI of 7 days.

The 2006 JMPR reported 25 European trials conducted in apples according to the cGAP in Germany. The residues were 0.03 (2), 0.04, 0.05, 0.06 (3), 0.07 (2), 0.08, 0.01 (3), 0.12 (2), 0.13, 0.14 (3), 0.16, 0.17, 0.18, 0.28 and 0.29 (2) mg/kg.

The current Meeting received eight field trials in pears conducted in Europe that matched cGAP in Germany. Residues were 0.058, 0.068, 0.069, 0.12, 0.23, 0.27, 0.29 and 0.69 mg/kg.

The Kruskal-Wallis test was used. The data sets from apple and pear are not significantly different, and can be combined as (n=33) 0.03(2), 0.04, 0.05, 0.06 (4), 0.07 (4), 0.08, 0.1 (3), 0.12 (3), 0.13, 0.14 (3), 0.16, 0.17, 0.18, 0.23, 0.27, 0.28, 0.29 (3) and 0.69 mg/kg

The Meeting estimated a maximum residue level of 0.7 mg/kg, a STMR of 0.12 mg/kg and a HR of 0.69 mg/kg for pome fruits. The Meeting withdrew its previous recommendation of 0.5 mg/kg for apple.

Assorted tropical and sub-tropical fruits – edible peel

Table olives

The critical GAP for the use of pyraclostrobin in olives was from Greece and consists of 2 foliar applications of 0.1 kg ai/ha, with the last application no later than BBCH 71. The PHI is determined by the growth stage. Eight field trials were conducted in Europe matching the cGAP with residues of < 0.01(8) mg/kg.

The Meeting estimated a maximum residue level of 0.01 mg/kg, a STMR of 0.01 mg/kg and a HR of 0.01 mg/kg for pyraclostrobin on table olives. The Meeting agreed to extrapolate this estimation for olives for oil production.

Assorted tropical and sub-tropical fruits – inedible peel - small

Litchi

The critical GAP in Australia is three foliar applications at 0.01 kg ai/hL at a RTI of 10 days with a PHI of 3 days. Two field trials were conducted in litchi in Australia matching the Australian GAP. The meeting agreed that the number of trials is not sufficient for the estimation of a maximum residue level.

Assorted tropical and sub-tropical fruits – inedible smooth peel – large

Avocado

The critical GAP for pyraclostrobin on avocado in the USA consists of 2 foliar applications of 0.166 kg ai/ha with a RTI of 7 days and a 0-day PHI.

In four field trials on avocado in the USA matching cGAP residues were (n=4): 0.028, 0.04, 0.065 and 0.104 mg/kg.

The Meeting recommended a maximum residue level of 0.2 mg/kg, a STMR of 0.053 mg/kg and a HR of 0.104 mg/kg for pyraclostrobin in avocado.

Mango

The critical GAP in Brazil consists of four foliar applications of 0.133 kg ai/ha with a RTI of 7 days and a 7-day PHI. In field trials conducted in mango in Brazil according to the Brazilian GAP residues were (n=6): 0.04, 0.08 (2), 0.14, 0.16 and 0.35 mg/kg. The Meeting recommended a maximum residue level, STMR and HR of 0.6, 0.11 and 0.35 mg/kg respectively for mango to replace its previous recommendation of 0.05(*) mg/kg.

Papaya

Pyraclostrobin is registered in Brazil with a cGAP of four foliar applications at 0.13 kg ai/ha with a 7-day RTI, and a PHI of 7 days.

In four field trials matching cGAPand conducted in Brazil, residues were (n=4): 0.02, 0.1, 0.2 and 0.22 mg/kg.

The Meeting agreed that the number of trials is not sufficient for the estimation of a maximum residue level for pyraclostrobin in papaya.

Assorted tropical and sub-tropical fruits – inedible rough or hairy peel – large

Pineapple

The critical GAP for pyraclostrobin in pineapple in Brazil consists of 4 × 0.15 kg ai/ha foliar applications and a PHI of 3 days.

In eight field trials conducted in pineapple in Brazil according to the Brazilian GAP, residues were 0.02(2), 0.03, 0.04, 0.05, 0.07, 0.09 and 0.19 mg/kg. Residues in pulp, were < 0.002 (4) mg/kg.

The Meeting estimated a maximum residue level of 0.3 mg/kg, a STMR of 0.002 mg/kg and a HR of 0.002 mg/kg for pyraclostrobin in pineapples.

Passion fruit

The critical GAP in Brazil for pyraclostrobin in passion fruit is 4 × 0.15 kg ai/ha foliar applications at a RTI of 10 days (total maximum seasonal application of 0.6 kg ai/ha), with a 7-day PHI. In trials in Brazil according to the Brazilian GAP residues were (n=4): 0.03, 0.04, 0.05 and 0.1 mg/kg.

The Meeting estimated a maximum residue level of 0.2 mg/kg, a STMR of 0.045 mg/kg and a HR of 0.1 mg/kg for pyraclostrobin in passion fruit.

Leafy vegetables (including Brassica leafy vegetables)

Lettuce, head

The 2006 JMPR estimated a HR of 19.7 mg/kg for pyraclostrobin in lettuce based on six trials conducted in the USA according to GAP (0.23 kg ai/ha and 0 days PHI). This resulted in an IESTI estimation that was 390% of the ARfD of 0.05 mg/kg bw. As a consequence of this exceedance, the 2006 Meeting considered an alternative GAP in Europe.

At the present Meeting, a new ARfD of 0.7 mg/kg was established for pyraclostrobin. The Meeting decided to reconsider the trials submitted to the 2006 JMPR conducted according to the USA GAP for the estimation of a maximum residue level. Residues were (n=6): 1.95, 3.69, 4.96, 13.7, 14.9, and 19.7 mg/kg.

The Meeting estimated a maximum residue level of 40 mg/kg, a STMR of 9.33 mg/kg and a HR of 19.7 mg/kg for pyraclostrobin in lettuce head.

The meeting withdrew its previous maximum residue level recommendation of 2 mg/kg for pyraclostrobin in lettuce head.

Spinach

The critical GAPs for pyraclostrobin on spinach in European countries is characterised by the GAP in Germany (2 × 0.1 kg ai/ha, a RTI of 8 days and a 14-day PHI) and Italy (2 × 0.1 kg ai/ha, a RTI of 7 days and a 14-day PHI).

In 10 trials conducted in France, Germany and Italy and matching cGAP, residues in spinach were < 0.01, 0.02 (2), 0.05 (2), 0.13 (2), 0.28, 0.31 and 0.91 mg/kg.

The Meeting estimated a maximum residue level of 1.5 mg/kg, a STMR of 0.09 mg/kg and a HR of 0.91 mg/kg for pyraclostrobin in spinach.

Witloof chicory (sprouts)

The critical GAP for pyraclostrobin in witloof chicory sprouts in France consists of one application to roots after their transfer to forcing trays, at 0.42 g ai/m^2 tray area. The PHI is 21 days.

Four trials conducted in Europe according to matching France GAP were 0.02, 0.027, 0.03 and 0.04 mg/kg.

The Meeting estimated a maximum residue level of 0.09 mg/kg, a STMR of 0.029 mg/kg and a HR of 0.04 mg/kg for pyraclostrobin in witloof chicory (sprouts).

Legume vegetables

Common bean (poroto)

Critical GAP in France for green beans (common beans) is 2 × 0.1 kg ai/ha, a RTI 10 days and a 7-day PHI. Data were availabel from residue trials on common beans in Belgium, France, Germany, Greece, Italy, Netherlands, Spain and the United Kingdom approximating the GAP of France.

Residues trials conducted in Europe according to the French GAP gave residues of 0.03(4), 0.04, 0.06(2), 0.12, 0.13(2), 0.14, 0.21, 0.24(2), 0.26, 0.28 and 0.37 mg/kg.

The Meeting estimated a maximum residue level of 0.6 mg/kg, a STMR of 0.13 mg/kg and a HR of 0.37 mg/kg for pyraclostrobin in common beans.

Subgroup Beans with pods, except common beans (poroto)

The GAP for pyraclostrobin in the USA for edible podded legume vegetables (including the whole subgroup of beans with pods) is 3 × 0.16 kg ai/ha, a RTI of 7 days and a 7-day PHI.

The 2004 JMPR reported seven trials conducted in the USA in snap beans at 2×0.23 kg ai/ha, PHI of 7 days. Residues were 0.04, 0.08, 0.1(2), 0.11, 0.13 and 0.16 mg/kg.

Residue decline trials show that an additional spray 21 days prior to harvest would not contribute significantly to the final residue and these trials can be evaluated against the USA GAP. The Meeting agreed that the proportionality approach could be applied to the data reported in by the 2004 JMPR (scaling factor of 0.7) giving residues of 0.028, 0.056, 0.07 (2), 0.077, 0.091 and 0.11 mg/kg

The Meeting noted that the GAP from France is for green beans (common beans), is more critical and results in a higher maximum residue level estimation than the USA GAP for the whole subgroup of beans with pods, and decided to exclude it from the subgroup recommendation.

The Meeting estimated a maximum residue level, a STMR and a HR of 0.3, 0.07 and 0.11 mg/kg for pyraclostrobin in the subgroup of beans with pods [014A], except common beans (poroto).

Broad beans and common beans without pods (succulent seeds)

The GAP for pyraclostrobin in France for broad beans and common beans is 2 × 0.1 kg ai/ha, with a 7-day PHI. In eight trials conducted in Europe in broad bean according to this GAP residues in broad beans without pods were < 0.01 (8) mg/kg.

The Meeting estimated a maximum residue level of 0.01 mg/kg, a STMR of 0.01 mg/kg and a HR of 0.01 mg/kg for pyraclostrobin in broad bean without pods (succulent seeds).

Eleven trials conducting with common bean according to GAP gave residues of < 0.01 (6), 0.01(2), 0.018, 0.02 and 0.27 mg/kg.

The Meeting estimated a maximum residue level of 0.3 mg/kg, a STMR of 0.01 mg/kg and a HR of 0.27 mg/kg for pyraclostrobin in common beans without pods (succulent seeds).

Peas with pods

Critical GAP in Spain is 2 × 0.1 kg ai/ha, RTI of 10 days and a PHI of 7 days. In five trials conducted in Europe, pea vines were sprayed at 2 × 0.067 kg ai/ha, residues were 0.03, 0.05, 0.05, 0.06 and 0.08 mg/kg at 6–7 DALA. The Meeting agreed to use proportionality to scale the residues (scaling factor of 1.5) giving residues of 0.045, 0.075, 0.075, 0.09 and 0.12 mg/kg.

The Meeting estimated a maximum residue level of 0.3 mg/kg, STMR of 0.075 mg/kg and HR of 0.12 mg/kg for the subgroup of peas with pods and agreed to withdraw its previous recommendation of 0.02(*) mg/kg for peas (pods and succulent=immature seeds).

Succulent peas without pods

Critical GAP in Spain is 2 × 0.1 kg ai/ha, RTI of 10 days and a PHI of 7 days. Sixteen trials were conducted in Europe according to this GAP giving residues in peas without pods of < 0.01(9), 0.01, 0.011, 0.013, 0.014 (2), 0.02 and 0.07 mg/kg.

The Meeting estimated a maximum residue level, a STMR and a HR of 0.08, 0.01 and 0.07 mg/kg for pyraclostrobin, respectively, in the subgroup of succulent peas without pods.

Pulses

Dry peas

The critical GAP for dried and succulent shelled peas and beans (including soya bean) in Canada comprises of two foliar applications at 0.15 kg ai/ha and a 30-day PHI. Data were availabel from supervised residue trials on field pea and lentil from USA and Canada at 2 × 0.224 kg ai/ha with harvest 30 DALA.

Residues found in nine trials on field peas were: < 0.02(2), 0.04, 0.05, 0.09(2), 0.13, 0.14 and 0.2 mg/kg. The Meeting agreed to apply the proportionality approach (scaling factor of 0.67) giving residues of < 0.02 (2), 0.027, 0.034, 0.06 (2), 0.087, 0.094 and 0.134 mg/kg.

Residues in lentils were (n=5): 0.03, 0.08, 0.085, 0.165 and 0.25 mg/kg. Scaled residues were (n=5): 0.0201, 0.0536, 0.057, 0.111 and 0.168 mg/kg.

The Meeting noted that GAP in Canada includes the subgroup dried peas. The Kruskal-Wallis test showed that the data sets from field peas and lentils are not significantly different and they can be combined as (n=14) < 0.02 (2), 0.201, 0.027, 0.034, 0.054, 0.057, 0.06 (2), 0.087, 0.094, 0.111, 0.134 and 0.168 mg/kg.

The Meeting estimated a maximum residue level of 0.3 mg/kg and a STMR of 0.059 mg/kg for pyraclostrobin on the subgroup dry peas.

Root and tuber vegetables

Root vegetables

The critical GAP for root vegetables in the USA is for three foliar applications at 0.234 kg ai/ha with a 7 day RTI and a 0-day PHI. In five trials conducted in the USA matching cGAP residues in radishes were: 0.05, 0.07, 0.08, 0.23 and 0.30 mg/kg.

In six trials on carrots conducted in the USA and matching cGAP residues were 0.03, 0.04, 0.12 (2), 0.15 and 0.24.mg/kg/kg.

The Kruskal-Wallis test showed that the data sets from radish and carrots are not significantly different and can be combined as (n=11): 0.03, 0.04, 0.05, 0.07, 0.08, 0.12(2), 0.15, 0.23, 0.24 and 0.3 mg/kg

The Meeting estimated a maximum residue level of 0.5 mg/kg, a STMR of 0.12 mg/kg and a HR of 0.3 mg/kg for pyraclostrobin in root vegetables

The Meeting withdrew its previous maximum residue recommendations for carrot (0.5 mg/kg) and radish (0.5 mg/kg).

Tuberous and corm vegetables

The critical GAP for tuberous and corm vegetables in the USA is for six foliar applications at 0.22 kg ai/ha with a 7 day RTI and a 3-day PHI. Nineteen trials conducted in the USA according to GAP gave residues of < 0.02 (19) mg/kg. The Meeting noted that, pyraclostrobin was not detected in the potato metabolism study reported by the 2004 JMPR.

The Meeting estimate a maximum residue level of 0.02(*) mg/kg, a STMR and a highest residue level of 0 mg/kg, for pyraclostrobin in subgroup of tuberous and corm vegetables.

The Meeting withdrew its previous maximum residue recommendation of 0.02(*) mg/kg for potato.

Stalk and stem vegetables – Stems and petioles

Celery

In Poland the cGAP for celery is for two foliar applications at 0.1 kg ai/ha with a 14-day RTI and a 14-day PHI. Nine trials were conducted in Europe matching this GAP, giving residues of 0.05, 0.09, 0.1, 0.11, 0.15, 0.21, 0.213, 0.59 and 0.61 mg/kg.

The Meeting estimated a maximum residue level of 1.5 mg/kg, a STMR of 0.15 mg/kg and a HR of 0.61 mg/kg for pyraclostrobin in celery.

Asparagus

The cGAP for asparagus in Germany is two foliar applications to the ferns (not before BBCH 69 after asparagus spears have been harvested) at 0.1 kg ai/ha with a 14-day RTI and a PHI not required. In seven trials from France, Germany, Italy and Spain approximating cGAP in Germany residues were < 0.01 mg/kg (7).

The Meeting estimated a maximum residue level of 0.01(*) mg/kg, a STMR and a HR of 0.01 mg/kg for pyraclostrobin in asparagus.

Cereals

Rice

The cGAP for rice in Indonesia is for two foliar applications at 0.1 kg ai/ha with a 10 day RTI and a PHI not specified (last application at mid-flowering BBCH 65).

Sixteen trials in paddy rice from China, Greece, India, Indonesia, Italy, Philippines, Spain, Taiwan Province of China, Thailand and Vietnam matching the Indonesia GAP gave residues in grain (with hulls) of < 0.01(3), 0.06, 0.07(2), 0.084, 0.17, 0.22, 0.26, 0.33, 0.38, 0.45, 0.49, 0.53 and 0.60 mg/kg.

Residues in brown rice (grain without hulls) were < 0.01(6), 0.02(2), 0.03(3), 0.04(4) and 0.06 mg/kg. Residues in polished rice were < 0.01(11), 0.015, 0.016 (2), 0.017 and 0.02 mg/kg.

The Meeting estimated a maximum residue levels of 1.5 mg/kg and a STMR of 0.195 mg/kg for pyraclostrobin in rice grain.

The Meeting estimated a maximum residue levels of 0.09 mg/kg and a STMR of 0.02 mg/kg for pyraclostrobin in husked rice (brown rice).

The Meeting estimated a maximum residue levels of 0.03 mg/kg and a STMR of 0.01 mg/kg for pyraclostrobin in polished rice

Grasses for sugar or syrup production

Sugar cane

The cGAP for sugar cane in Brazil consists of a single in-furrow application at 0.133 kg ai/ha followed by 5 foliar applications of 0.13 kg ai/ha at intervals of 21 days. The PHI is 30 days.

In four field trials were conducted in sugar cane in Brazil according to the Brazilian GAP the residues were < 0.01(2), 0.02 and 0.03 mg/kg.

In eight additional trials conducted in Brazil using 2.4× cGAP in Brazil, residues were: 0.011, 0.012, 0.056, 0.062, 0.066, 0.079, 0.093 and 0.11 mg/kg. Residues scaled to the cGAP are: 0.0045, 0.005, 0.023, 0.026, 0.027, 0.032, 0.038 and 0.045 mg/kg.

The Meeting estimated a maximum residue level of 0.08 mg/kg, a STMR of 0.0265 mg/kg and a HR of 0.045 mg/kg for pyraclostrobin in sugarcane.

Seed for beverages and sweets

Cacao beans

The GAP for cacao in Brazil consists of maximum 3 foliar applications of 0.2 kg ai/ha at intervals of 30 days. The PHI is 14 days. In three trials conducted in Brazil matching this GAP residues were: < 0.01(3) mg/kg.

The Meeting estimated a maximum residue level of 0.01 mg/kg, and a STMR of 0.01 mg/kg for pyraclostrobin in cacao beans.

Tea

The cGAP in Japan is 2 × 0.003 kg ai/hL with a PHI of 7 days. In six trials in China, India, Japan and Taiwan Province of China conducted at a higher rate than the Japanese GAP, residues in dried green tea leaves were: 0.64, 1.0, 1.4, 2.5, 5.3 and 5.8 mg/kg.

The Meeting agreed to apply proportionality to scale the residues (scaling factors of 0.68, 0.65, 0.5, 0.49, 0.46 and 0.57 respectively) to give scaled residues: 0.44, 0.65, 0.7, 1.23, 2.4 and 3.3 mg/kg.

The Meeting estimated a maximum residue level of 6 mg/kg and a STMR of 0.965 mg/kg for pyraclostrobin in tea (green, black).

Animal feedstuffs

Bean (vines)

Critical GAP in France for green beans is 2×0.1 kg ai/ha, a 10-day RTI and a 7-day PHI. Sixteen trials conducted in Europe according to this GAP gave pyraclostrobin residue in vines of common bean of 0.21, 0.28, 0.43, 0.44, 0.85, 0.92, 1.6, 1.63, 2.5, 2.65, 2.8, 3.54, 3.9, 3.9, 6.34 and 8.45 mg/kg.

The Meeting estimated a median residue of 2.065 mg/kg and a highest residue level of 8.45 mg/kg for pyraclostrobin on bean forage (vines), as received.

Rice straw and fodder, dry

The critical GAP for rice in Indonesia is two foliar applications at 0.1 kg ai/ha with a 10-day RTI and a PHI not required (last application at mid-flowering BBCH 65). Residues found in straw from trials matching Indonesian GAP were (n=16): < 0.01, 0.013, 0.349, 0.402, 0.506, 0.73, 0.75, 0.821, 0.89, 0.93, 1.2, 1.5, 2.19, 2.22, 2.24 and 2.69 mg/kg, as received basis.

The Meeting estimated a maximum residue level of 5 mg/kg for pyraclostrobin in rice straw and fodder, dry. The Meeting estimated median and highest residues of 0.856 mg/kg and 2.69 mg/kg, respectively, for pyraclostrobin in rice straw and fodder (as received).

Rice hulls

Residues in rice hulls from trials matching Indonesian GAP were (n=16): < 0.01, 0.031, 0.031, 0.138, 0.264, 0.282, 0.32, 0.532, 0.739, 0.99, 1.2, 1.25, 1.46, 1.5, 2.35 and 2.65 mg/kg.

The Meeting estimated a median residue for rice hulls of 0.636 mg/kg.

Fate of residues during processing

High temperature hydrolysis

The degradation of [^{14}C] pyraclostrobin was studied in an olive oil / water mixture to simulate the process of olive oil raffination (deodorisation step from raw oil to refined oil). A mixture of olive oil and aqueous NaCl were heated at 190 or 240 °C for 30 minutes. Most of the radioactivity was retained in the olive oil phase. Pyraclostrobin was degraded by loss of an acetyl to 500M07 (32–50% AR 190 °C; 6.0–23% AR at 240 °C) which undergoes cleavage to produce 500M04 (13–25% AR at 190 °C; 70–82% AR at 240 °C) and 500M049 (5.7–10% AR at 190 °C; 0–4.6 at 240 °C).

Residues in processed commodities

The Meeting received data on the effects of processing and preparation of apple, olives, spinach, rice, sugarcane and tea on residue levels of pyraclostrobin. Residue information, processing factors, and recommendations for STMR-P, HR-P, and maximum residue level recommendations relevant to the current evaluation are shown in the table, below.

Summary of pyraclostrobin residues in processed commodities.

Crop	Residue value (mg/kg) in raw commodity			Processed Commodity	Calculated PF	PF	Residue value (mg/kg) in processed commodity		
	MRL	STMR	HR			(Mean or best estimated)*	MRL**	STMR-P	HR-P
Sugar cane		0.0265		Molasses		0.2		0.005	0
				Refined sugar		0.1		0.0025	
Apple	0.7	0.12	0.69	fresh pomace	14.82, 6.39, 16.01, 9.88	11.77		1.41	
				juice	0.12, 0.04, 0.08, 0.15	0.1		0.012	
				apple sauce	0.38, 0.41, 0.67, 0.65	0.53		0.0697	
Olives				Wash cater (olives)	0.02, 0.1, 0.03, 0.04	0.05		0.0005	
	0.01	0.01	0.01	Virgin oil	7.36, 5.91, 5.18, 6.5	6.24	0.07	0.0624	
				Fermented olives	1.09, 1.02, 1.45, 1.17	1.18		0.0118	0.0118
Spinach	1.5	0.09	0.91	Washed spinach	0.96, 0.63, 0.9, 1.17	0.92		0.082	0.84
				Blanched spinach	0.81, 0.66, 1.31, 0.83	0.91		0.092	0.83
				Cooked spinach	0.78, 0.45, 1.31, 0.62	0.79		0.07	0.72
Rice	1.5	0.195	0.604	Bran	0.59, 0.36, 0.69	0.55	a	a	
				Parboiled white milled rice	0.09, 0.08, 0.11	0.09		0.018	
				Flour	0.01, 0.03, 0.02	0.02		0.004	
				Brown rice	0.1, 0.07, 0.14	0.1	a	a	
				Polished rice	0.02, 0.03, 0.02	0.02	a	a	
				Hulls	4.28, 4.47, 4.54	4.43		a	

Crop	Residue value (mg/kg) in raw commodity			Processed Commodity	Calculated PF	PF	Residue value (mg/kg) in processed commodity		
	MRL	STMR	HR			(Mean or best estimated)*	MRL**	STMR-P	HR-P
				Sake	0.01, 0.03, 0.02	0.02		0.004	
Tea	6	0.965	3.3	Infusion solution	0.175, 0.007, 0.0010.001	0.001		0.0009	
				Instant tea	0.0020.175, 0.007, 0.002	0.002		0.0019	
				Steeped leaves (infusion)	0.270.246, 0.313, 0.272	0.27		0.26	

*The factor is the ratio of the total residue in processed commodity divided by the total residue in the RAC.

** maximum residue levels in processed commodities are only proposed where they are higher than the maximum residue level in the RAC.

[a] Estimated on a basis of supervised residue trials.

In the supervised trials on rice, residues of pyraclostrobin in bran were analysed. Residues in bran from trials matching the Indonesian GAP were (n=16): < 0.01(3), 0.027, 0.036, 0.08, 0.089, 0.13, 0.15, 0.17, 0.18, 0.21, 0.23, 0.24, 0.29 and 0.38 mg/kg. The Meeting estimated a STMR-P of 0.14 mg/kg for rice bran (unprocessed).

Residue in animal commodities

Farm animal dietary burden

The Meeting estimated the dietary burden of pyraclostrobin in farm animals on the basis of the diets listed in Appendix IX of the FAO Manual 2016. Calculation from highest residue, STMR (some bulk commodities) and STMR-P values provides levels in feed suitable for estimating maximum residue levels, while calculation from STMR and STMR-P values for feed is suitable for estimating STMR values for animal commodities. The percentage dry matter is taken as 88–89% when the highest residue levels and STMRs are already expressed on a dry weight basis. The Meeting was informed by an official communication of the government of Australia that no bean fodder is imported. Therefore, the animal burden due to treated bean fodder was not taken into account for that region.

Estimated maximum and mean dietary burdens of farm animals

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by the JMPR. The dietary burdens, estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual, are presented in Annex 6 and summarised below.

Region	Livestock dietary burden, pyraclostrobin, ppm of dry matter diet							
	US - Canada		EU		Australia		Japan	
	Maximum	Mean	Maximum	Mean	Maximum	Mean	Maximum	Mean
Beef cattle	7.92	1.83	27.82	10.18b,d	22.53	7.715	4.009	1.55
Dairy cattle	19.8	5.79	29.41a,c	9.22	22.53	5.921	9.347	3.35
Broiler poultry	0.319	0.319	0.59	0.41	0. 108	0. 108	0.995	0.304
Laying poultry	0.319	0.319	9.996e	3.179f	0.108	0. 108	0.049	0.049

[a] suitable for estimating maximum residue levels for meat, fat and edible offal of cattle.

[b] suitable for estimating STMR for meat, fat and edible offal of cattle.

[c] suitable for estimating maximum residue levels for Milk.

[d] suitable for estimating STMR for Milk.

[e] suitable for estimating maximum residue levels for poultry meat, offal and eggs.

[f] suitable for estimating STMRs for poultry meat, offal and eggs.

The resulting maximum dietary burdens for beef and dairy cattle, including the additional feed stuffs considered by the current Meeting, were slightly higher than those previously estimated.

Cattle-STMR, HR and maximum residue levels

The current Meeting received no additional animal feeding studies. The resulting maximum dietary burdens calculated for beef and dairy cattle were slightly higher than those previously estimated.

The Meeting used TRR levels from the lactating goat metabolism study. In the metabolism study, C^{14}-pyraclostrobin, equivalent to 12–50 ppm in the diet, was orally administered to lactating goats for 5 consecutive days, the highest residues (0.82 mg/kg) were found in fat, 0.047 mg/kg in milk, 0.089 mg/kg in muscle, 0.07 mg/kg in liver and 0.074 mg/kg in kidney.

When scaled to the dietary burden of 29.41 ppm, the anticipated residues are 0.0276 mg/kg in milk, 0.0523 mg/kg in muscle, 0.482 mg/kg in fat, 0.0411 mg/kg in liver, and 0.0435 mg/kg in kidney.

On the basis of the anticipated residues, the Meeting estimated a maximum residue level of 0.03 mg/kg and a STMR of 0.0095 mg/kg for milk.

The meeting recommended maximum residue levels of 0.5, 0.5 and 0.05 mg/kg for meat (fat) (from mammals other than marine mammals), mammalian fats (except milk fats) and for edible offal, respectively. The meeting estimated STMRs and HRs of 0.015 and 0.044 mg/kg for edible offal, 0.0181 and 0.052 mg/kg for muscle, and 0.166 and 0.48 mg/kg for fat. The meeting agreed to withdraw its previous recommendations for mammalian tissues and milk

The Meeting confirms the previous recommendations for poultry commodities.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue levels listed below are appropriate for establishing a maximum residue level and for an IEDI and IESTI assessment.

Definition of the residue for compliance with MRL and for dietary risk assessment for plant and animal commodities: *pyraclostrobin*.

CCN	Commodity name	Recommended maximum residue levels, mg/kg		STMR, STMR-P or median [mg/kg]	HR, HR-P or Highest Residue [mg/kg]
		New	Previous		
FP 0226	Apple	W	0.5		
VS 0621	Asparagus	0.01*	-	0.01	0.01
FI 0326	Avocado	0.2	-	0.053	0.104
VP 2060	Beans with pods, subgroup of, except common bean	0.3	-	0.07	0.11
VP 0523	Broad bean, without pods (succulent seeds)	0.01	-	0.01	0.01
SB 0715	Cacao beans	0.01	-	0.01	-
VR 0577	Carrot	W	0.5		
VS 0624	Celery	1.5	-	0.15	0.61
VP 0526	Common bean	0.6	-	0.13	0.37
VP 2845	Common beans (succulent seeds)	0.3	-	0.01	0.27
VD 2066	Dry peas, Subgroup of (includes all commodities in this subgroup)	0.3	-	0.059	-
MO 0105	Edible offal (Mammalian)	0.05	0.05*	0.015	0.044
VL 0482	Lettuce, head	40	2	9.33	19.7
MF 0100	Mammalian fats (except milk fats)	0.5	-	0.166	0.48
MM 0095	Meat (from mammals other than marine mammals)	0.5 (fat)	0.5 (fat)	Muscle: 0.0181 Fat: 0.166	Muscle: 0.052 Fat: 0.48
FI 0345	Mango	0.6	0.05*	0.11	0.35
ML 0106	Milks	0.03	0.03	0.0095	-
SO 0305	Olives for oil production	0.01	-	0.01	0.01
OC 0305	Olive oil, Virgin	0.07	-	0.062	-
VP 2061	Peas with pods, Subgroup of	0.3	-	0.075	0.12
VP0063	Peas (pods and succulent=immature seeds)	W	0.02*		

CCN	Commodity name	Recommended maximum residue levels, mg/kg		STMR, STMR-P or median [mg/kg]	HR, HR-P or Highest Residue [mg/kg]
		New	Previous		
FI 0351	Passion fruit	0.2	-	0.045	0.1
FI 0353	Pineapple	0.3	-	0.002	0.002
FP 0009	Pome fruits (includes all commodities in this group)	0.7	-	0.12	0.69
VR 0589	Potato	W	0.02*		
VR 0494	Radish	W	0.5		
GC 0649	Rice	1.5	-	0.195	-
CM 0649	Rice, Husked	0.09	-	0.02	-
CM 1205	Rice, Polished	0.03	-	0.01	-
AS 0649	Rice straw and fodder, dry	5 (dw)	-	Median: 0.856 (as)	Highest: 2.65 (as)
VR 2070	Root vegetables, Subgroup of (includes all commodities in this subgroup)	0.5	-	0.12	0.3
VL 0502	Spinach	1.5	-	0.09	0.91
VP 2063	Succulent peas without pods, Subgroup of (includes all commodities in this subgroup)	0.08	-	0.01	0.07
GS 0659	Sugar cane	0.08	-	0.0265	0.045
FT 0305	Table olives	0.01	-	0.01	0.01
DT 1114	Tea, Green, Black (black, fermented and dried)	6	-	0.965	-
VR 2071	Tuberous and corm vegetables, subgroup of (includes all commodities in this subgroup)	0.02*	-	0	0
VL 2832	Witloof chicory (leaves/sprouts)	0.09	-	0.029	0.04

For dietary risk assessment and calculation of livestock dietary burden

Group number	Processed commodities	Recommended maximum residue levels, mg/kg		STMR-P or median [mg/kg]	HR-P or highest residue [mg/kg]
		New	Previous		
CM 1206	Rice Bran, Unprocessed			0.14	
	Apple dried pomace			4.16	
	Bean (vines)			2.065	8.45
	Rice hulls			0.636	
	Rice flour			0.004	
	Cooked spinach			0.07	0.72
	Refined sugar			0.0025	
	Tea infusion			0.0009	

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The ADI for pyraclostrobin is 0–0.03 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for pyraclostrobin were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3 of the 2018 JMPR Report. The IEDIs ranged from 1–7% of the maximum ADI.

The Meeting concluded that long-term dietary exposure to residues of pyraclostrobin from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for pyraclostrobin is 0.7 mg/kg bw. The International Estimate of Short Term Intakes (IESTIs) for pyraclostrobin were calculated for the food commodities and their processed commodities for which HRs/HR-Ps or STMRs/STMR-Ps were estimated by the present Meeting and for which consumption data were available. The results are shown in Annex 4 of the 2018 JMPR Report. The IESTIs varied from 0–60% of the ARfD for children and 0–30% for the general population.

The Meeting concluded that acute dietary exposure to residues of pyraclostrobin from uses considered by the present Meeting is unlikely to present a public health concern.

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